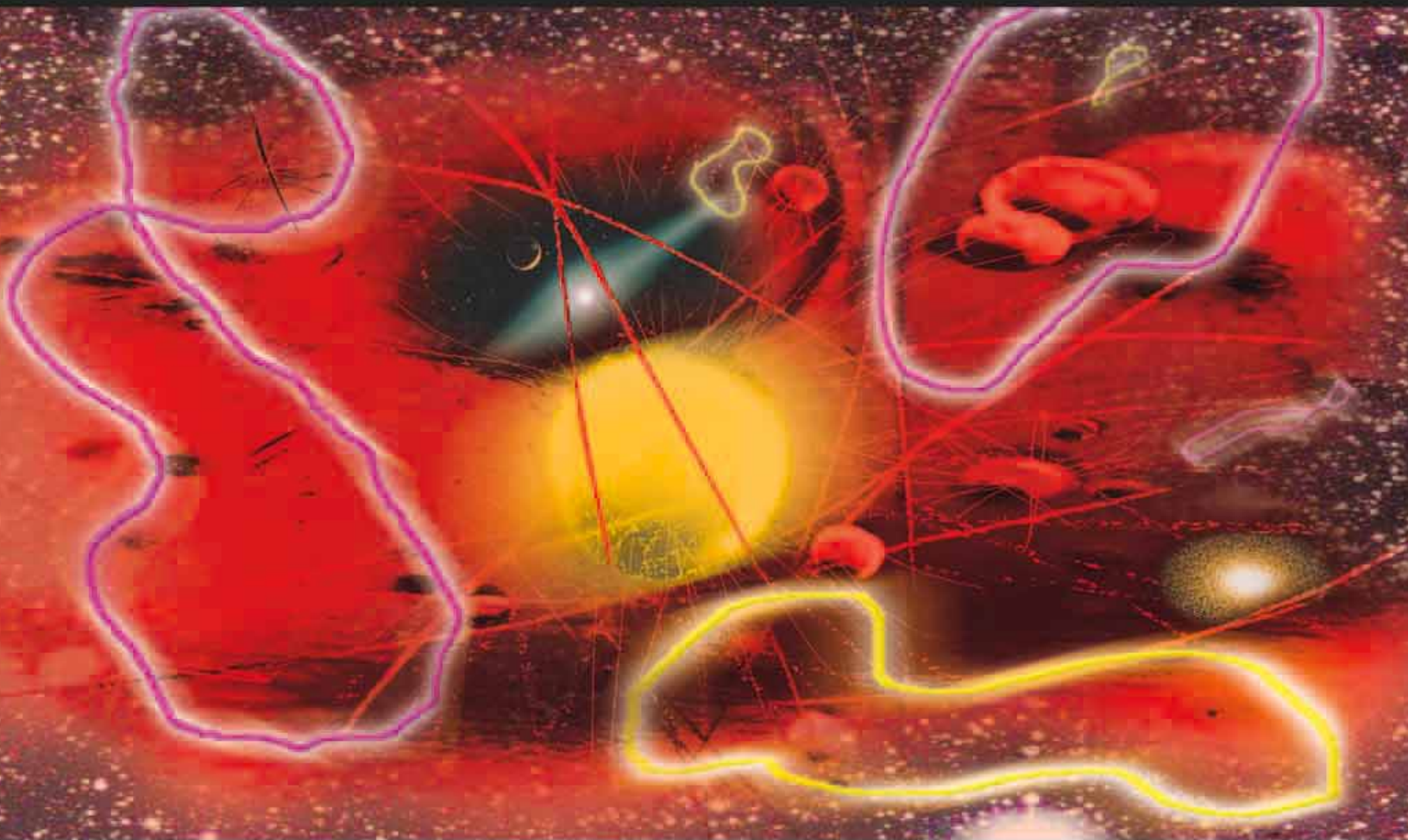


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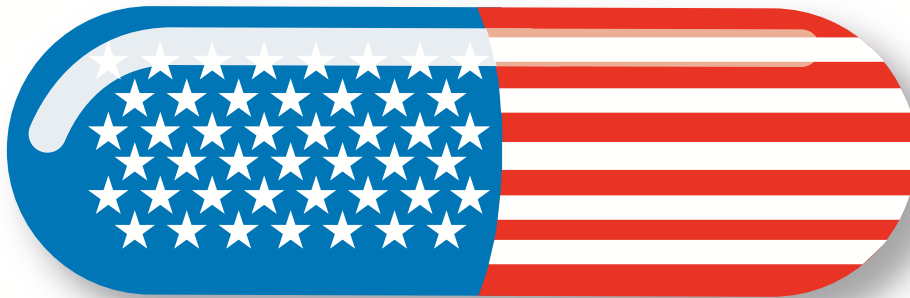
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THE BUSINESS OF TECHNOLOGY

04.24.06

THE RACE



WHO WILL WIN?



TO CURE CANCER

THE NEW SKYPE?

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On Jajah

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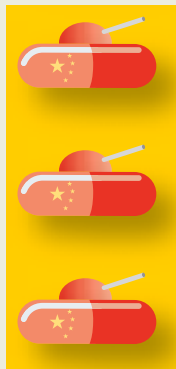
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When two hot Austrian entrepreneurs compared VoIP and search data, a light went on.



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On the subcontinent, they're either dreaming up games for cell phones, or eagerly devouring them.



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Protests and Fear

Citizens around the world seem to be taking to the streets in droves in protest against their governments. In France, Thailand, and the United States, democratically elected officials are confronted by millions of protesters who insist that their voices be heard. Is there a strong link among these different groups of banner bearers? Yes: their common anxiety about the future and the pervasive technologies that are transforming the competitive landscape.

Many of these protesters may not have heard of the economic bestseller of ten years ago, *Competing for the Future*, co-written by Gary Hamel and C.K. Prahalad. The authors forecast the disruptive effects of global competition and technological breakthroughs. Thailand has seen many of its low-cost industries eviscerated by China's high-tech, low-wage economic performance. In France, young people are afraid to face their first job and get fired. And in the U.S., a nation of immigrants, the struggle centers on the status of the 10 million to 20 million undocumented workers whose labor ensures that the country remains competitive.

The mere fact that a Parisian, a Californian, or a Thai fears tomorrow should

not surprise anyone. The redistribution of wealth and power has accelerated across continents; mobility or a lack of it often defines success or failure. Pragmatists and reformers attempting to accept the reality of perpetual change have to battle the astounding blindness of those who are trying to maintain a decaying order and artificially delay the inevitable.

Unrelenting Forces

Only technology and education can enable modern or emerging economies to play a role in a world increasingly dominated by large states with enormous capital reserves and a bottomless supply of manpower. The young French may eventually dethrone Prime Minister Dominique de Villepin with the help of demagogues, but in their lifetimes they will face the unrelenting forces of global competition. The same applies to the Thai opposition that pushed out Prime Minister Thaksin Shinawatra, a reformist who wanted to transform the structure of Thailand's agricultural economy. In the U.S., the government is to blame, for its attempted criminalization of immigration goes against the very fabric of a nation built on its attractiveness to millions of people around the world.

America lives and thrives on its immense and ever-changing flow of immigrants, from illiterates to Ph.D.s, who eventually swear allegiance to the flag. Reneging on an open policy, which has already been curtailed because of 9/11 and the ignominious fake Saudi students, is already costing the U.S. a great deal. Thousands of brilliant minds from many nations now land at Canadian or British campuses instead. In a mere decade, they will be pumping out technology innovations in competition with Silicon Valley startups that they would have otherwise founded.

One of the most cherished democratic rights is the ability to take to the streets in support of an opinion. But we should beware of the grand objectives and the underlying protectionism that have become so pervasive now that global competition is entering a new accelerated phase. Technology leaders, including John Chambers and Bill Gates, have recently flown to Washington, D.C., to brief lawmakers about what is at stake. Once one has entered this global race, it seems impossible to quit or slow down unilaterally without losing it all.

Alex Vieux, Publisher



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DATA SYSTEMS



THE LORE OF RED HERRING

In the 1800s, wily British fugitives discovered that rubbing a herring across their trail would divert the bloodhounds in hot pursuit. Later, in debate and detective mysteries, “red herring” described any clever device used to distract people from the main issue. In the 1920s, American investment bankers began calling preliminary investment prospectuses red herrings as a warning to investors that the documents were not complete or final. The documents were distinguished by covers printed mostly in red. In the spirit of full disclosure, the founders of this publication felt *Red Herring* to be an appropriate name for a magazine dedicated to providing a first look at the companies and trends shaping the business of technology.

A Sputnik Moment

One of the recurring lessons in our new era of globalization is that creativity is not centered in any single place. This belies the comfortable presumption some technologists and politicians still hold: that lesser tasks can be farmed out to places like India and China while the United States or Western Europe continue to monopolize the higher orders of innovation.

In this flat world, such assumptions are as patronizing as the Rambo myths that too often drive U.S. foreign policy. Yet, they enable policy makers to give comfort to constituents who see jobs move abroad and who want some reassurance that they have a secure economic future.

Our cover package this week focuses on startling new advances in cancer therapy in China and India. Our lead story, “China’s War on Cancer” (p. 32), reports on a claim by Chinese scientists that they are successfully treating a particularly deadly form of the disease with a gene therapy drug called Gendicine. China’s drug regulators have certified the effectiveness of a treatment that has been all but banned in the U.S.

Gene therapy is “magic bullet” medicine: genes are designed to directly attack and neutralize cancerous cells, sparing the patient the debilitating and often destructive impact of the shotgun approach of common treatments like chemotherapy and radiation. But a highly publicized 1999 case in the U.S. where the therapy went out of control and killed a patient set back development efforts. Now the Chinese scientists say they have found a way to benefit the majority of patients they treat. If their claims are confirmed, they will indeed have had a “Sputnik moment,” a scientific advance that shocks and surprises the West like the 1957 Soviet satellite launch.

Our second piece in this package, “New Treatments and Tools in India” (p. 36), looks at a very different approach to cancer. There, a new therapy with the daunting name of Rotational Field Quantum Magnetic Resonance, a kind of super MRI, has shown promising results in treating brain tumors. The machine developed in India is the only one of its kind.

Both articles are reminders that we cannot place borders around creativity and discovery. Innovative new solutions will emerge everywhere in a world where information flows easily, and where education, investment, and ambition cross national lines. This doesn’t solve the complex problems that politicians face as intellectual work is redistributed on a global scale, but it does provide hope that more great cures will emerge in many more places. **RH**

Joel Dreyfuss, Editor-in-Chief



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Strategic Position

Re: "iTunes Phone Flop's Lesson" (RedHerring.com, April 7).

If you review the advertising done, and by whom, you will see that Cingular pushed it the hardest.

In my opinion, this was a feint by Apple meant to extend the Apple brand, show that they can compete with Microsoft (Motorola built a MS phone first), and promote the iTunes site with minimal cannibalization of their iPod product line. The phone was crippled on purpose by limiting the number of songs that could be stored. Users that loved the iTunes service would probably buy an iPod, driving incremental sales.

Motorola has a tendency to cover all bets and see who wins. It was a win-win for them because they showed that they are a good partner to Cingular, they demonstrated to Apple that they are platform neutral, and improved their reputation with their primary demographic. Once Apple realizes that they need a real phone story, Motorola will be there.

This study begs the more interesting questions of marketing strategy. They didn't ask the right people the right questions.

David Goldstein

Austin, TX

New Possibilities

The article "Boot Camp is Wimpy: Analyst" (RedHerring.com, April 7) doesn't make a lot of sense. For starters, the program is not in any way comparable to virtualization. It's like saying that Apple's program isn't very interesting because it can't make onion soup. I do not own an Intel Mac, but since this software came out, I am actually considering buying one of the next-generation Intel Macs. The reasons people would buy a Mac are simple. They either buy them for their design or for their functionality. Neither of those requires running more than one OS at once. In fact, you can run more than one OS at once, be it on an Intel Mac or on an IBM PC. This piece of software just opens up the possibility to do so, because now it's not only possible to run Windows inside OS X, but also OS X on Windows, not to mention other existing operating systems like Unix, Solaris, and all flavors of Linux.

Barry Staes

Eindhoven, The Netherlands

Patent Pirates, Not Trolls

Re: "US Bill Blocks Patent Trolls" (RedHerring.com, April 6).

It is unfortunate that Reps. Howard Berman (D-California) and Rick Boucher (D-Virginia)

and Jon Dudas, Under Secretary of Commerce for Intellectual Property and director of the U.S. Patent and Trademark Office, have chosen to promote Microsoft's and Research In Motion's (RIM) agenda for a patent system which would facilitate these companies' appropriation of real inventors' work with virtual impunity. The hearing held in the House on April 5 was rigged to only allow those companies and their cronies to testify. Both companies lost cases in part because each was caught red-handed committing fraud upon the courts in their respective Eaton and NTP litigations. Reps. Berman and Boucher explicitly excluded other stakeholders such as independent inventors Pharma and Bio from the hearing. Rigging of hearings has long been the hallmark of legislators who carry water for predatory companies. They are known in the inventor community as patent pirates because they pirate real inventors' property and then have the nerve to call patent holders who hold them accountable "patent trolls." Patent pirates are real, while patent trolls are figments of the pirates' and their representatives' imaginations.

Ronald J. Riley

Professional Inventors Alliance

Apple's One-Sided View

The huge problem that Apple is going to face, especially in Europe due to the deeply rooted culture of what-I-buy-I-really-own, is its policy of creating proprietary products ("Apple's B-Day Wish: Mac Users," RedHerring.com, March 31). For example:

- The restriction that music and movies from the Apple Store placed on iPods cannot be copied multiple times to different mediums;
- Media conversion generally is not allowed;
- Apple hardware's universal use and interoperability is limited; and
- Day-to-day software problems (which rarely appear) and hardware issues (which are very frequent nowadays, especially with iPods) annoy users because they cannot be solved by "tech-savvy" users due to the limits Apple imposes on them.

Believe me, this cannot appeal to European and Asian users and will bring sooner or later a decline in Apple's image and, consequently, sales. Apple has to realize that digital convergence cannot be achieved only by the one-sided view Apple has for its products. Digital convergence means that all hardware mediums play all media formats to all visual mediums.

Spiros Stamatakis

Coca-Cola HBC, Athens



04.24.06

THE WEEK

FISH BITES

**“WE
NEVER
DID IT.”**



Former Enron CEO Jeffrey Skilling responding in court to charges that he and other Enron executives conspired to commit fraud (*Fortune*).

“It reminds me of visible smog, because it obscures what you want to be looking at. You have to waste brain cycles to filter it out, or, if you own a blog, you have to go through extraordinary measures to keep it out.”



BoingBoing.net founder and blogger Mark Frauenfelder on the explosion of junk comment posts on blogs (*News.com*).

“If they sterilize the place, it won’t be a place where hipsters will hang out anymore.”

Jupiter Research analyst David Card after social-networking site MySpace.com moved to clean up the site (*BusinessWeek*).

INTEL OUTSIDE

\$184.5M

AMD net income for the period ended March 26, up from a loss of \$17.4 million during the same period a year earlier as the microprocessor underdog continues to hammer Intel (see “AMD Beats Expectations, Intel,” p. 12).

Source: AMD

GUANG NING/GETTY IMAGES

INTERNET



Google CEO Eric Schmidt announces new brand name ‘Guge’ in Beijing.

Man in the Middle

Google CEO Eric Schmidt defends China censorship policy.

In a deft bit of maneuvering, Google event organizers in the Chinese capital last week asked government officials to leave a Google press conference at the Beijing Hotel before taking questions from reporters.

Presumably, Google made the move to save members of China’s powerful National Development and Reform Commission and the Beijing Commerce Bureau from the embarrassment of having to hear direct criticism.

But, in effect, Google CEO Eric Schmidt was left alone to answer questions—including a surprisingly pointed one from a reporter for the state-owned *Shanghai Daily*—on the Mountain View, California-based company’s controversial acquiescence to Beijing’s censorship demands.

The questions overshadowed a long-overdue move aimed at getting Google more in synch with Chinese culture. Mr. Schmidt, joined by Google Greater China co-presidents Kai-fu Lee and Johnny Chou, unveiled the new Chinese-language brand name for the search giant’s mainland operation. “Guge” (pronounced “goo-ger” in Mandarin) literally means “valley song” or “harvesting song.” Google selected the name from approximately 1,800 rough Chinese homophones for “Google.”

Google’s lack of a Chinese name had hobbled the company. A survey conducted in August 2005 by the China Internet Network Information Company (CNNIC) revealed that more than half of respondents could not correctly spell “Google.”

The new name follows a far more controversial shift last Janu-

(Continued on page 12) ►►

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Your potential. Our passion.™
Microsoft



▶▶ (Continued from page 9)



ary, when Google launched a censored China-hosted version of its search engine. Censored search results pages include a disclaimer explaining that local regulations prevent Google from displaying some results.

Tough Choices

Google's uncensored international sites, including its U.S.-hosted Chinese-language site, remain accessible from China.

But the search giant has drawn fire from free-speech advocates as well as critics in the U.S. Congress for compromising with Beijing (see "Dancing With Dictators," Vol. 3, No. 8, p. 34).

"We did an evaluation of our choices," Mr. Schmidt told a group of international journalists in a smaller press conference held afterward. "We had a choice to enter under law, and another choice not to enter the country at all. The choice of entering the country and not following the law is not a legitimate choice. We have to follow the law."

Asked what efforts Google has made to lobby Beijing to change its strict censorship policies, Mr. Schmidt replied, "I think it's arrogant for us to walk into a country where we're just beginning operations and tell that country how to run itself."

That position has its skeptics. "It is reasonable, if Google is asked to block certain things, that they can ask for a formal request outlining what law is being violated," says Rebecca MacKinnon, a fellow for the Berkman Institute for Internet and Society at Harvard University Law School. "So when he [Mr. Schmidt] says, 'We're complying with Chinese law,' that's not really accurate: Google is complying with bureaucratic fiat, based on proactive interpretations."

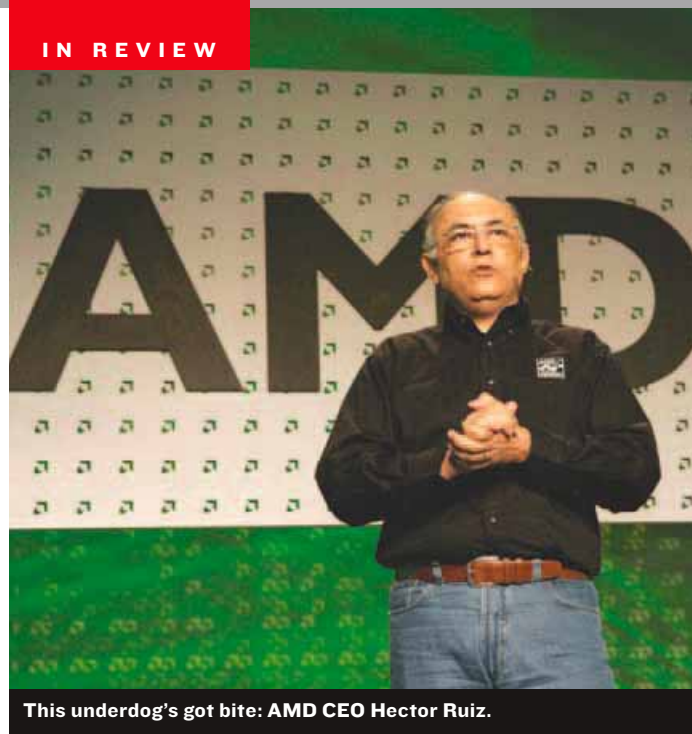
However, Mr. Schmidt said that Google has been careful not to expose the personal information of users to the Chinese government, and there are no signs of a backlash among users against Google in the United States. "People haven't run in disgust, that's for sure," says Charlene Li, principal analyst at market research firm Forrester Research. "They are still the No. 1 search engine and they continue to gain share."

Yahoo Feels the Heat

By contrast, Yahoo has come under heavy criticism for turning over user information to Chinese authorities—information that may have resulted in the conviction and jailing of two dissidents in 2003 and 2005.

Activists took their grievances with Yahoo to its headquarters last week. Julien Pain of Reporters Without Borders, which advocates free speech, went to Yahoo's Santa Clara, California, headquarters with a news crew from ABC's *World News Tonight* demanding access to Yahoo executives. **RH**

IN REVIEW



This underdog's got bite: AMD CEO Hector Ruiz.

AMD Beats Expectations, Intel

It was a classic victory for the underdog. When **Hector Ruiz** took over as CEO at AMD, the microprocessor company was Intel's whipping boy. Whenever AMD gained ground on Intel the semiconductor giant would hit back—hard. That is, if AMD's own production glitches didn't sabotage it. For the past three years, however, AMD has been steadily catching up. Last week AMD reported net income for the quarter ending

March 26 of \$184.5 million, or \$0.38 per share, up from a loss of \$17.4 million, or \$0.04 per share, for the prior year. That's largely thanks to the December spin-off of its money-losing memory business, **Spansion**, and fresh gains against Intel with its line of 64-bit server and desktop processors. Analysts believe AMD's level of profitability now exceeds even that of Intel. We'll find out when Intel reports quarterly results **April 19**.

;-) LOL

82 million

Europeans use instant messaging (IM) to communicate while online.

69 million

People in North America use IM.

MSN Messenger

Most popular IM application worldwide.

Latin America

Has largest proportion of Internet users (64 percent) using IM.

Source: comScore Networks

Amp'd Scores Biggest Round Of 2006

Here's a shocker: it looks like there's big money to be made connecting teenagers to their friends. In the largest venture deal of 2006, youth-oriented mobile phone company **Amp'd Mobile** closed \$150 million in third-round financing. The service, launched in December, will face tough competition from **Helios**, **Sky Dayton's** latest venture. That company has already raised \$440 million, and will launch this spring. Like Helios, industry analysts expect Amp'd and its competitors to experiment relentlessly with new technologies, such as Wi-Fi and mobile television, in an effort to attract techno-crazed youth.

Mobile Puzzle

29 percent

Of U.S. mobile carrier game revenue comes from puzzle/strategy titles.

\$4.69

Average price per puzzle/strategy game.

Card, Casino

Games capture the second-highest percentage of revenue (17 percent).

Source: eMarketer

MySpace Gets a Mommy

OK kids, mom is home. MySpace.com hired a safety czar last week in response to growing pressure from lawmakers, police, and parents to protect minors from online predators who may be trolling the social networking site. The site, operated by News Corp's

Fox Interactive Media division, appointed Hemanshu (Hemu) Nigam as its chief security officer. He will oversee safety, education, and privacy programs, as well as law enforcement affairs for MySpace, in addition to other Fox Interactive sites. MySpace hired Mr. Nigam away from Microsoft, where he had been serving as director of consumer security outreach and child-safe computing.

Google Makes Calendar Entry

To do: reinvent yet another category of web applications that have grown stale since the boom. Google last week released a calendar service that users can share with others and which allows Gmail users to add events mentioned in email to their calendar. The move brings Google in closer competition with web portals Yahoo and MSN, which already offer calendaring services. It also makes life interesting for the swarm of startups spe-

cializing in calendars, such as 30 Boxes, that have cropped up in recent months.

Hard Drive Sales Set Record

Well, now we know where all that pirated music is going. Sales of hard disk drives hit an all-time growth record in 2005, research firm iSuppli said last week. Global hard drive shipments rose by 71 million units, or 23 percent, to 376 million units in 2005 from 305 million units in 2004. The 2005 increase easily beat the prior growth record of 41.3 million units in 2003, iSuppli said.

Oracle Snacks on Portal Software

Like a fat man gobbling a breath mint after a huge meal, database outfit Oracle said last week that it bought billing software vendor Portal Software for about \$220 million. The move gives Oracle access to customers in the communications and media

industries, and comes as Oracle continues to digest customer-service software specialist Seibel, which it bought for \$5.75 billion, and business software company PeopleSoft, purchased for \$11 billion. Oracle will pay \$4.90 per share for the Cupertino, California business. RH

Travel Orientation

79 percent

Of gays and lesbians typically go online to book personal travel.

54 percent

Of heterosexuals report doing the same.

Price

Was most important variable for both groups when planning personal trips.

Source: Harris Interactive

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RYAN OLSON

“Tape is not disappearing. It’s not going away. It plays a vital role in the backup, recovery, and archive markets.”

Whatever Happened To... Rick Belluzzo?

Former SGI CEO says that tape drives are here to stay.

Rick Belluzzo has been in leading positions at some of the tech industry’s biggest names. After 23 years at Hewlett-Packard he became the CEO of SGI, and from there he worked for three years as Microsoft’s COO. In 2002 he became the CEO of San Jose-based tape drive specialist Quantum. The company was in a weak position when he arrived, Mr. Belluzzo says, and needed to deal with a number of entanglements as a result of the 2001 sale of its hard drive business to rival Maxtor. Now, Mr. Belluzzo says efforts to reshape operations and offer products beyond traditional tape are paying off.

Red Herring: *What are the challenges facing your former employers?*

Rick Belluzzo: SGI is an example of a transition gone bad. Graphics became commoditized and [they] didn’t have the culture and wherewithal to make that transition. To some extent, the same thing happened with supercomputing. Very few people want to buy specialized systems anymore. Microsoft is dominated by the desktop. Over time they will be challenged as the desktop becomes less relevant. People aren’t going to

be willing to upgrade their PCs and continue to spend the amazing amounts of money for these applications because you’ll be able to get that information and be connected everywhere you go.

Red Herring: *What does tape’s future look like?*

Rick Belluzzo: Tape is not disappearing. It’s not going away. It plays a vital role in the backup, recovery, and archive markets. What’s more important is how tape changes. People who are interested in the speed of [data] recovery will not put their data on tape, but when they have to archive large amounts of data, that’s where tape is. The other aspect [of our business] is aggressively building a strategy outside of tape. You’re in a lot better position to tell your story when you have a broader range of products.

Red Herring: *Such as?*

Rick Belluzzo: We started a few years ago with the launch of a virtual tape library. We think frequently about tape offerings and how we [can] use disk-based solutions to replace them. We consistently monitor alternatives like optical and ask ourselves... whether this is something we should get in on. **RH**

NEXT WEEK

Libya: Open for Business?

Libya’s journey back into the good graces of Western nations has been long and strange. Before September 11, 2001, it was hard to imagine that Mu’ammar Qadhafi, the North Africa nation’s leader for 36 years, would ever fess up to bombing a Pan Am jet over Lockerbie, Scotland, in 1988. Or that he would authorize a multimillion-dollar payout for the families of the 270 victims. But that’s what he did in the fall of 2003. It was harder still to conceive of the day a few months later when Libya announced it would relinquish its nuclear ambitions and swear off weapons of mass destruction.

Still, the oil-rich country of around 6 million people finds itself on the U.S. Department of State’s list of countries that sponsor terrorism. Being on that list brings more than presidential condemnation during annual State of the Union speeches. Along with Cuba, Iran, Sudan, North Korea, and Syria, Libya cannot import a broad range of weapons and related technologies from the United States and its allies.

But Libya has something the West wants. It produces 1.5 million barrels of oil a day. And

by some counts there are 100 billion barrels of oil still undiscovered in Libya. The country will spend more than \$5 billion this year upgrading its infrastructure as it tries to pump more crude for an oil-thirsty world. The U.S.-Libya Business Alliance is lobbying the State Department to take Libya off the list when it publishes its new list at the **end of April**. If Secretary of State Condoleezza Rice agrees, that could be good news for high-tech companies like Lockheed Martin and Boeing.

EARNINGS: eBay, April 19

Neither Google nor Amazon has poached much business from eBay, which boasts 180 million registered users and is expected to earn \$200 million in revenue this year. But eBay’s core business in the U.S. is slowing, and it has not yet shown how its \$2.6-billion purchase of Internet phone company Skype will fit into its overall strategy. Analysts, who expect eBay’s shares to earn \$0.24 when it reports its earnings to investors, will see how well the company is poised to juice its coasting U.S. business and duke it out with competitors in China, where it has invested \$100 million. **RH**



SALAH MALKAWI/GETTY IMAGES



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Mouse Calls



Disney offers cell phone tracking.

After 50 years of standing as a symbol of wholesome fun, Mickey Mouse is about to enter a new stage in his storied career: cell phone spy. In June, Disney Mobile will launch a cell phone service that allows parents to monitor kids with a GPS device and set limits on text messaging, voice calls, and downloads.

When a child approaches the pre-set limit, parents will receive a text message alert. They can then choose to extend or deny service, though the phones will allow emergency calls even if service is denied, says Tim Schramm, a Disney spokesperson. The service could strike a chord with parents concerned about children racking up spending charges for digital content and voice calls.

It's not just big bills that have parents fretting. From the faces of missing children on milk car-

tons to the fear mongering on local news, the specter of child abductions haunts the imagination of American parents. Never mind that only 100 children a year are kidnapped by strangers in the United States. As always, there's profit in fear. Any parent would pay for the magic ability to find out where their kid is, says Kenneth Hyers, an analyst with ABI Research. Verizon Wireless is expected to launch a similar service this summer.

For years, location-based services have caused concern among mobile phone companies, but the entrance of a family-friendly big brand like Disney may go a long way toward calming their anxiety. Now the Mouse will have to spend the next 50 years rehabilitating its image in the minds of a generation of children who associate it with blocked calls and 24/7 surveillance. **RH**

Money for New Media

Blogging, podcasts, and RSS promise cash.

"User-generated content" puts a gleam into most every web entrepreneur's eye. It's the cash crop of today's web startups and portals. Citing MySpace, Google AdSense, and Craigslist, they exclaim, "The users"—no drum roll necessary—"will make the product!" There's a catch. It's hard to know what kind of cash we're talking about.

Last week PQ Media took a stab at the problem. The research company released projections for advertising spending on blogs, podcasts, and web feeds. The optimistic take of triple-digit growth is likely to bolster many a business plan, though bloggers contend that

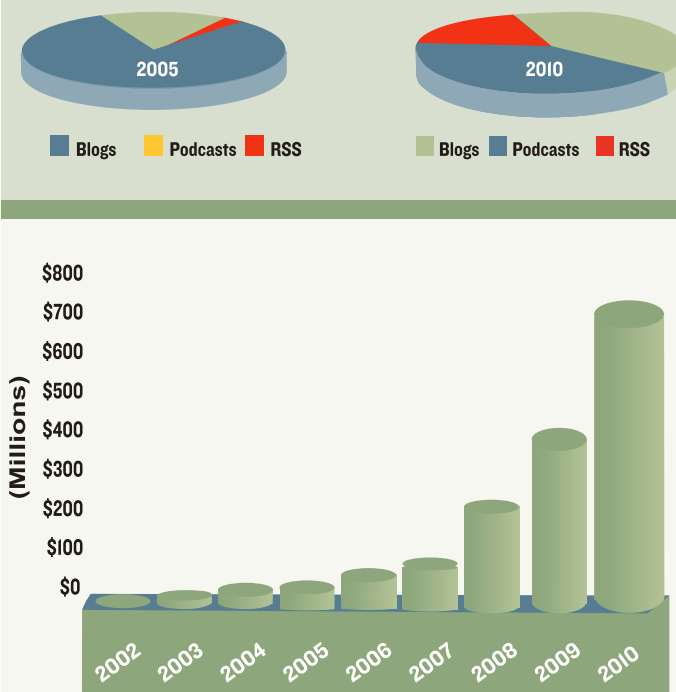
the numbers seem low.

The sector's potential will grow in proportion to the quality of return-on-investment metrics it can provide, says PQ Media President Patrick Quinn. As marketers lose faith in self-reported television viewer metrics and the like, they are more likely to invest in risky new opportunities.

Still, despite 106 percent compound growth forecast through 2010 (up to \$757 million from \$20.4 million today), Mr. Quinn is careful to say that user-generated content will remain a niche. eMarketer recently said overall online ad spending will reach \$28.5 billion in 2010, up from \$12.5 billion in 2005. **RH**

Power to the People

As user-generated content advertising spending shoots up, podcasting is expected to overtake blogs.



Source: PQ Media



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The Phone Seller of Kabul

Karim Khoja has a slogan anyone would wish were true.

It must have been hard for Karim Khoja, the CEO of Afghan cell phone operator Roshan, to listen to the grouching of his peers at a wireless industry convention in Las Vegas this month. How simple it would be to have problems like government taxation and regulation. Mr. Khoja's complaints were about the armed guards he stations across his network, the domination of the "poppy" industry, and the \$240 that passes for an annual wage in Afghanistan's ruined society.

Not exactly ideal conditions for running a cell phone

company. But Mr. Khoja says Roshan, which means "light" in the local languages Dari and Pashto, already has 1 million subscribers. "Don't underestimate the Afghan market," he says, pointing to a mobile music download service that brought in \$100,000 in its first day.

The Middle East's wireless industry is growing rapidly, and has over 1 billion subscribers. Even Afghanistan's decades of upheaval and more recent U.S. occupation haven't excluded it from the wireless revolution. Mr. Khoja says his company's investment is "creating the middle class of Afghanistan." He



The "Tele" ban is taking over.

SCOTT BARBOUR / GETTY IMAGES

bills himself as a patriotic do-gooder with the tagline, "If they can speak they will not fight."

It's an over-the-top claim, to be sure. Especially when Mr. Khoja describes some of his clients as Afghans with AK-47s and recalls a customer who dropped \$10,000 in cash on his desk for three high-end phones.

But while the early adopters

might be the briefcase-of-cash types, an affordable service could lure the rest of Afghanistan's 31 million people. "Cellular technology has a democratizing effect," says Eddan Katz, executive director of the Information Society Project at Yale University. Perhaps not only the poppy-economy will stand to benefit in Afghanistan. **RH**

GAMES

Dorks Ex Machinima

If you've heard of machinima, the chances are good that you're a card-carrying nerd. But increasingly the idea of turning video game footage into animation is catching the eye of the mainstream. This month the San Francisco Film Festival will screen parts of *Red vs Blue*, a comedy series from Rooster Teeth Productions in Austin, Texas, that employs images from the video game

Halo. It's not exactly *The Incredibles*, but the concept could be a first step toward placing computer-generated animation into the hands of many. Writer and director Burnie Burns says the company is working on its fourth season, and has almost 1 million downloads of each short episode. That's not bad for five geeks with four Xboxes. Watch your back, Pixar. **RH**



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Survey shows VCs, CEOs differ on issues, strategies.

A study of venture-backed firms released last week cites big differences in how CEOs see priorities and how their VC board members see them.

Conducted by the National Venture Capital Association and Dow Jones VentureOne, the survey of 700 CEOs and venture investors found CEOs and VCs split on what drives conflicts in organizations. Venture capitalists named personal-ity conflicts, exit strategies, and management changes as the top three issues. CEOs selected valuation, burn rates, and exit strategies as the most common causes for conflict.

The most common reasons for changing leadership, according to VCs, had to do with recruiting people with more sales and marketing expertise

(83 percent) and operational leadership (63 percent).

Management transitions and exit strategies ranked high for VC board members, while CEOs were more concerned with priorities for financing strategies—though exits concerned top execs, too.

Both VCs and CEOs cited Sarbanes-Oxley compliance and stock option valuation as the top two concerns of audit committees. But even here, more venture capitalists than CEOs were concerned about Sarbanes-Oxley. The difference, though, was telling: 65 percent of VCs saw SOX as cutting into a board's ability to find outside directors, while only 21 percent of CEOs felt that way.

"We believe that most private companies are concerned about being SOX compliant—even though they don't have to be," observes Chad Waite, general partner of OVP Venture Partners. "Unlike many startup CEOs, most [people] in the VC community have the added perspective of having served on private and public company boards," he adds.

Many CEOs wonder if VCs sit on too many boards, the survey found. Indeed, while VCs

getting directorships was generally the quid pro quo for securing venture backing, it was easy to see how CEOs might worry about over-extended VCs taking their eye off the ball. All well and good, but 81 percent of VC respondents said getting a seat on the board was a prerequisite for funding.

Indeed, close to two-thirds of VCs surveyed said they expected to increase their board participation in the next two years.

No surprise, then, that CEOs and their venture backers differed on how thin VCs should spread themselves. Based on averages tallied from the survey, CEOs said VCs should hold fewer directorships than what VCs themselves had in mind.

According to VCs, an ideal number of board seats averaged 4.6 for early-stage companies and 5.5 for later-stage companies. According to CEOs, the average should be 4.0 and 4.6.

The survey found that venture capitalists were sitting on fewer boards this past year—an average of four in 2005, down from

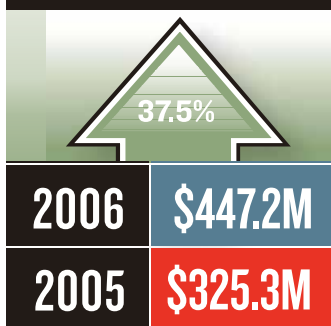
five in 2000.

The survey data showed some regional variations in how many seats VCs held. In the San Francisco Bay area, VCs averaged the highest number of board seats at five per VC; in other regions, VCs averaged only three seats.

Interestingly, 88 percent of CEOs and 73 percent of VCs said they do not have specific metrics for measuring a board's effectiveness. And while 60 percent of VCs had a policy in place for handling conflicts of interest (between their fiduciary responsibility to the company and financial obligation to limited partners), only 25 percent of CEOs had a similar policy. **RH**



VENTURE INVESTMENT



April 5-12, 2006: International companies led a healthcare-heavy group with strong pharma funding announcements (see Top 10, p. 21).

Source: Announcements from VentureWire and PE Week, Analysis by Red Herring

VENTURE CAPITAL

Bloom off the Roses

Has venture funding forsaken information technology? A recent study showing a drop in IT sector venture funding for the first quarter of 2006 makes you wonder. Not all fundings were disclosed to market analysts at Datamonitor, but its tally gives you a start: total investments in the quarter ran to \$3.01 billion, down slightly on the same year-earlier period's \$3.19 billion.

The number of deals actually rose: 285 global investment deals in technology companies in the first three months of 2006, up marginally from 269 in the year-ago period.

All this comes at a time when it's hard to get a sense of where IT spending is headed. Market watcher IDC, which publishes both monthly and 12-month spending forecasts, puts IT spending

on a 5 to 6 percent rise over 2006.

Encouragingly, IDC's March forecast suggested increased IT spending would grow 11 percent over March 2005. But by April the rosy outlook had darkened, with spending projections retreating to numbers more in line with its annual projections.

Certainly, the biggest deals Datamonitor tracked showed VCs favoring plays in the wireless sector, which netted 217 deals that raised a total of \$216 million in February.

"We are finding that investors are looking to back companies that are offering some form of service for mobile phone users, be it content, gaming, or even location-based applications for mobile devices," says Datamonitor senior analyst Tom Jowitt. **RH**

First-Quarter Investment Tops \$1.4B

There's little question that VCs love India, but a new study documents just how much.

In the quarter just ended in March, private equity and venture capital firms invested about \$1.4 billion in 69 Indian companies, more than triple the amount invested during the year-ago quarter, and 1.7 times the amount during the October-December 2005 quarter.

"The average PE deal size has gone up to about \$20 million from \$14 million during the same period last year," says Arun Natarajan, founder of Venture Intelligence India. "The increasing investments by PE firms in real estate as well as in mature IT, BPO [business process outsourcing], and manufacturing companies have contributed to the rise in deal sizes."

The quarter saw a strong surge in the number of VC investments. The Venture Intelligence India study shows 16 early-stage investments occurred during the period, a close second to the 18 PIPE (private investment in public enterprise) investments made by PE firms in publicly listed companies.

Companies in the growth and late stages attracted 10 and 16 investments, respectively.

With 22 deals worth about \$558 million—including the biggest in the bag, Temasek's \$360-million reported investment in Tata TeleServices—the IT and IT-enabled services industry drew the highest number of investments during the

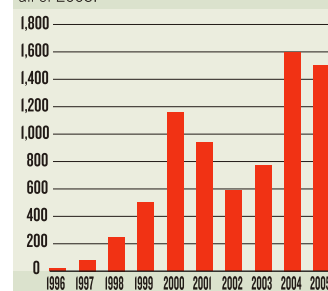
quarter. Within this sector, on-line and mobile services and IT services were the favorites.

"The half-dozen investments made by top-rung Silicon Valley VC firms like Kleiner Perkins, Sequoia, DFJ, and Norwest in Indian consumer Internet and mobile services companies during the latest quarter have provided a strong boost to early-stage technology companies in the country," notes Mr. Natarajan.

The upward trend seems likely to continue in the coming months. India's ICICI Venture Funds recently received cabinet permission to raise \$750 million overseas from nonresident Indians (NRIs), persons of Indi-

India VC on the Rise

The first quarter of 2006 almost saw as much venture financing as India experienced during all of 2005.



Source: India Venture Capital Association, Venture Intelligence India

an origin, and foreign investors for its \$1-billion India Advantage Fund VI.

ICICI Venture plans to invest in midsize growth companies and to fund acquisitions, restructurings, management buyouts, and leveraged buyouts. It will focus on IT-enabled services, media, pharmaceuticals, manufacturing, and retail, in that order. Other funds are in the works. **RE**

TOP

10

Healthcare Out In Front

Three international companies each grab more than \$30M.

Company	Amount	Round	Sector	Location	Backers
Sharekhan	\$32.5M	N/A	Internet Services	Mumbai, India	General Atlantic, Intel Capital, HSBC Private Equity India Fund
Novagali Pharma	\$31.5M	N/A	Pharmaceuticals	Evry, France	AGF Private Equity, Bernard Chauvin, 1.2.3. Venture, Auriga Partners, CDC Enterprises Innovation Credit Agricole Private Equity, Edmond de Rothschild, FCJE, Siparex Ventures
Xenon Pharmaceuticals	\$31M	N/A	Pharmaceuticals	Vancouver, Canada	MX Associates, LipoteRx, Invesco Private Capital
AngioScore	\$30M	D	Medical Devices	Fremont, CA	Telegraph Hill Partners, QuestMark Partners, Psilos Group Management, UV Partners, California Technology Ventures, Innomed Ventures
Aperto	\$26M	E	Wireless	Milpitas, CA	GunnAllen Venture Partners, JK&B Capital, Canaan Partners, Alliance Ventures, Innovacom, JAFCO, Labrador Ventures
Shriram	\$23M	N/A	Construction	Chennai, India	Bessemer Venture Partners
Bayhill Therapeutics	\$15.8M	B	Pharmaceuticals	Palo Alto, CA	A.M. Pappas Life Science Ventures, Boston Life Science Venture, CMEA Ventures, De Novo Ventures, Grand Cathay Venture Capital Company, Latterell Venture Partners, Lilly Ventures, Montreux Equity Partners, Morgenthaler Ventures, PAC-LINK Bio Management, (Quintiles) PharmaBio Development, Prudence Venture Investment, U.S. Venture Partners, Vertical Group
Zimbra	\$14.5M	C	Enterprise Software	San Mateo, CA	Presidio STX, Duff Ackerman & Goodrich, Benchmark Capital, Accel Partners, Redpoint Partners, Inventures Group
Theranox	\$14M	A	Healthcare	Conshohocken, PA	Quaker BioVentures, NewSpring Capital, Viasys Healthcare
Innate Pharma	\$12.3M	N/A	Pharmaceuticals	Marseille, France	Novo Nordisk, Sofinnova Partners, Alta Partners, GIMV, Auriga Partners, Axa Private Equity, Glide Healthcare, NIF, Quilvest, Pechel Industries, Innoveris, Inserm-Transfert

Source: Announcements from PE Week and VentureWire, analysis by Red Herring

Jumping Juniper

Will the Alcatel-Lucent deal spur a sale of the networking gear maker?

If you can't beat them, buy them. Telephone equipment makers such as Siemens, Motorola, and Ericsson might draw just that conclusion as the Internet and competition from a newly combined Alcatel and Lucent take hold.

The logical acquisition candidate? Juniper Networks, the Sunnyvale, California-based vendor of Internet networking gear for long-haul networks. In a research note, Merrill Lynch analyst Tal Liania recently wrote that the Alcatel-Lucent merger makes Juniper "a prime acquisition target."

Juniper was a boom-time superstar, making huge returns for venture capital backers such as Benchmark Capital and Kleiner Perkins Caufield & Byers; its shares touched \$243 in late 2000. While its share price is nowhere near that mark today, the shift toward the Internet has

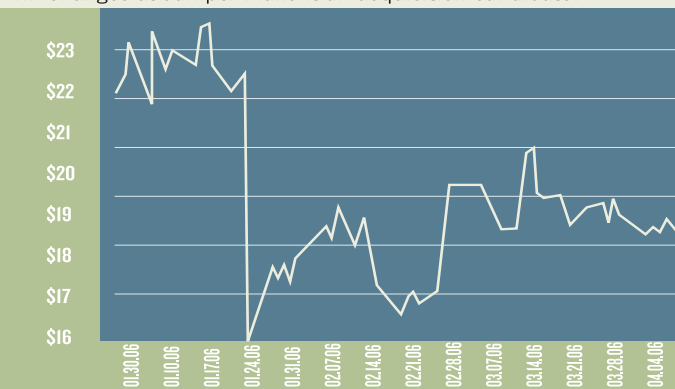
kept Juniper's business healthy, even as telecommunications equipment suppliers such as Nortel continue to stumble.

As a result, Juniper won't come cheap—it sports a price-earnings ratio of 33. But recent uncertainties have left it looking cheaper. Its shares have fallen 31.8 percent to \$18.86, from its 52-week high of \$27.65 last year. In January, it guided analysts 2006 sales and earnings forecasts lower. Over the past year, five top executives have left.

But all that could make Juniper a more attractive acquisition. Juniper's market capitalization of \$10.57 billion is a fraction of rival Cisco Systems' \$129.7 billion, making Cisco off limits to any phone gear vendor. And much more of Juniper's business comes from carriers, making it a better match for a company already serving those markets.

Jagged Edge

Will changes at Juniper make it an acquisition candidate?



Source: Commodity Systems

Moreover, Juniper could provide relatively slow-growing phone equipment companies a much-needed dose of growth. Analysts surveyed by Thomson First Call expect it will see sales growth of roughly 18 percent, to \$2.44 billion this year, from \$2.06 billion in 2005. That's profitable growth, too. Last year Juniper sported gross margins of 68 percent.

However, Juniper has also tied its fortunes to those of the bigger telecommunications equipment vendors. Ericsson, Lucent Technologies, and Siemens all now resell Juniper gear to their cus-

tomers, with Munich-based Siemens accounting for more than 10 percent of Juniper's sales for each of the last three years.

With Lucent and Alcatel distracted by the rigors of integration, competitors will look for opportunities to pick up some sales. "It raises more questions for Juniper than Cisco," says John Slack, an analyst with Chicago-based investment research company Morningstar. "But it also creates some near-term opportunities."

Juniper did not immediately return calls seeking comment. **RH**

COMMUNICATIONS

Radio Flyer

Seeking to break out of a slump, conglomerates prepare to push HD Radio at retail.



Clear Channel CEO Mark Mays

The terrestrial radio industry is trying to do something it has not done in more than 50 years—innovate. Since FM radio debuted back in the late 1940s, the industry has had little new to sell, outside of slimmer car radios and boom boxes.

Now, besieged by new technologies such as satellite broadcasting and digital music players, radio is talking to electronic retail stores about shelf positioning, in-store merchandising, staff training, and customer education because it has some-

thing new to sell.

Members of the HD Radio Alliance, such as Clear Channel CEO Mark Mays, are betting that new technology can counter the threat. So-called High Definition radio promises static-free sound and multi-channel broadcasts. The alliance, which includes most of the top radio conglomerates in the United States, said recently that it has added three new retailers to its short but growing list of retail outlets that will participate in a program of in-store promotion of HD Radio. Tweeter, Crutchfield, and ABC Warehouse/Detroit will participate in the educational and point-of-sale marketing program to push HD radio.

It will be an uphill task. HD receivers are still relatively expensive, although the prices

have been slashed in half in recent months, from about \$499 to about \$250. But the drop in prices has failed to stimulate sales because few brick-and-mortar retailers carry the receivers, despite the fact that more than 15 manufacturers make the devices.

The retail push is occurring at a difficult time. According to BIA Financial Network, the radio industry generated \$18.2 billion in advertising revenue in 2005, a sum almost identical to its 2004 revenue and just a shade below BIAfn's 2006 growth projections of 2.2 percent.

"The HD Radio Alliance understands now that they need to create a catalyst to stimulate critical mass," says Carl Mathews, Crutchfield's senior director of mobile merchandise. **RH**

Don't Cray for Me

Will the venerable supercomputer company be delisted?

The bigger they are, the harder they fall. So goes the saying, and it couldn't be more true for former supercomputing giants. The latest sad news: Cray faces delisting on the Nasdaq stock market, accused of failing to file its 2005 annual report in a timely manner.

The Seattle-based company is a pale shadow of its 1980s self. Many say it's not even the same company—it was bought by Tera in 2000 and was moved from its Wisconsin base. New kinds of supercomputing, or high-performance computing (HPC), technologies have made broad tech companies like IBM

and Hewlett-Packard leaders in HPC while specialists like Cray and Silicon Graphics Inc. (SGI) have struggled like mammoths in a tar pit.

They're almost as endangered as the woolly elephants, too. SGI itself was booted off the New York Stock Exchange late last year because its shares were consistently below \$1.

Meanwhile, IBM's family of Blue Gene machines currently has five of the top 10 fastest computers in the world, according to the TOP500, a list of the speediest supercomputers put out twice a year. And HP is No. 1 in the high-performance



FREDERIC J. BROWN/GETTY IMAGES

Long in the tooth: Do supercomputer companies belong in museums?

computing market, according to IDC, with 31 percent of the \$9-billion market in 2005.

Cray laid off 8 percent of its work force in March and lost chief scientist Burton Smith to Microsoft last fall. But the company is soldiering on, asking the Nasdaq for permission to keep trading until it files its 2005 financial report, which could be affected by a 2004 non-cash accounting item.

To be sure, the old giants aren't extinct yet. Cray CFO Brian Henry says the company plans to stick with customers in scientific and government research. "We sell to traditional

markets, but in new geographies," he told *Red Herring* last year. And they've done just that, bagging contracts in South Korea, the United Kingdom, and Australia.

Even better, Cray recently made inroads in Japan with both academic and auto industry clients. Good for them: Japanese company NEC just two years ago boasted the fastest computers in the world and once dominated the industry globally. But if a former HPC behemoth can only win by beating another behemoth, maybe the era of supercomputer gods is truly ending. **RH**

An iPod for Wind Power?

Cheaper, user-friendly turbines could pave the way for more investment.

Venture capitalists have found it difficult to make investments in wind power. That's frustrating, because VCs are anxious to put money into clean energy, and wind power is gain-

ing speed. But so far most wind power consists of large-scale wind farms that produce electricity for utilities.

New technology could change that. Earlier this month, Southwest Windpower (SWWP) raised \$8 million to launch a small generator that could bring wind power to individual homes and businesses. "It will unlock an extraordinary market, here and abroad," says Hap Ellis, a general partner at RockPort Capital Partners, which led the round.

It's easy to see why Mr. Ellis is excited. Global wind markets grew 47 percent to \$11.8 billion in 2005, and are expected to reach \$48.5 billion in 2015, according to Clean Edge, a market research firm. With this deal, RockPort, Altira Technology Fund IV, and CTTV In-

vestments, the venture arm of Chevron Technology, may have found a way to harness a wind storm that was once the sole domain of big utilities.

SWWP's technology targets a new market for wind—any building on at least half an acre in a wind-rich location. While SWWP already makes small wind turbines for "off-grid" customers—that is, customers that are too isolated to be connected to the electric grid—it has only sold some 95,000 in the last seven years, says CEO Frank Greco.

The grid-connected market is potentially far larger, as Mr. Greco estimates 13 million homes could use the grid-connected technology in the United States alone. But wind power hasn't been widely used in grid-connected homes and businesses because the technology requires a number of inverters and controllers, and installation is complicated, he says.

SWWP's new turbine is much easier to use. It includes all the inverters, controllers, and other

parts needed to connect to the grid. They are all contained within the body of the generator, lowering the production and installation costs, says Mr. Greco, who expects a retail price of around \$5,500. At that price, the average cost per kilowatt hour would be \$0.08—not including subsidies available in many states, he says. That means wind can beat the cost of regular electricity, which in the U.S. averages \$0.09 per kilowatt hour, he says. The turbine also produces electricity at lower wind speeds and the blades top out at only 300 rotations per minute to reduce noise, he says.

SWWP estimates the potential grid-connected market is worth about \$1 billion. The company made revenues of "just under" \$10 million in 2005, and expects a 70 percent growth rate this year because of the new product, Mr. Greco says. "We will be extremely profitable this year," he says. Let's hope that Mr. Greco's prediction turns out to be more than just a lot of, er, wind. **RH**



CHRISTOPHER FURLONG/GETTY IMAGES

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Demand for On-Demand Web software's NetSuite mulls IPO.

Despite the fact that it loses money, NetSuite could be one of this year's top software IPOs, analysts say.

NetSuite, which makes software to help small businesses with inventory and accounting, delivers its applications over the Internet, not on CDs that must be installed on company systems. It delivers it on demand, in other words. And if the San Mateo, California-based outfit floats sometime later this year as CEO Zach Nelson (pictured) said April 7, it would be one of the biggest on-demand companies to offer stock.

Rival Salesforce.com, based in San Francisco, debuted on the New York Stock Exchange in 2004, raising \$126.5 million. Bozeman, Montana-based RightNow went public two months later on the Nasdaq, grossing about \$40 million.

NetSuite is the first company to offer a comprehensive package of enterprise resource planning (ERP) software on demand, says Peter Goldmacher, an analyst with SG Cowen in San Francisco. "I think they can become the SAP of the on-demand ERP market." The German software giant dominates the ERP market in traditional software.

Mr. Nelson himself reckons the IPO for his company, which also provides customer management applications, could match Salesforce.com's.

NetSuite's revenue, estimated by analysts at \$40 million to \$50 million, grows at more than 70 percent year over year, Mr. Nelson says. "It bodes well for good valuation," he says.

He sees the company moving into the black in the second half of the year, which is also when he expects the offering to take place. Right now, the company is going through its pre-IPO checklist, taking steps to be-



Pumped about IPO plans.

come compliant with Sarbanes-Oxley corporate governance requirements, among other tasks.

On-demand software is a growing trend. Traditional software companies such as Microsoft, SAP, and Oracle are all scrambling to develop their own on-demand software before upstarts eat their lunch.

But there's always a chance that Larry Ellison will rain on Mr. Nelson's party. The Oracle CEO was an early investor in NetSuite and currently owns 60 percent of the company. Analysts hint the database giant could decide to snatch it up before it ever goes public.

Mr. Goldmacher isn't sure that would be a smart move. "It would be less expensive to buy NetSuite when it is successful," he says, "than to pay less for it before it is proven, and crush it within a larger company like Oracle." **RH**

Free Software's Payday

Red Hat buys JBoss for \$420M.

Giving software away for free works, if JBoss is anything to go by. The open-source startup stands to pocket as much as \$420 million after being bought on April 10 by Red Hat, one of only a few publicly traded open-source companies. Red Hat is paying \$350 million up front and another \$70 million down the road if Atlanta-based JBoss meets certain performance goals.

Raleigh, North Carolina-based Red Hat, which offers installation and support services for the open-source operating system Linux, is looking to become the equivalent of Microsoft for open-source services—and that's just where three-year-old JBoss comes in. Its thing is middleware—basically, software embedded into hardware—that allows applications to talk to operating systems, and that could be one of the missing pieces Red Hat needs to become a one-stop shop for open-source software.

"Red Hat will need to move up the infrastructure stack if it wants to compete with BEA,

ON-DEMAND SOFTWARE STOCKS ARE NO DOGS

Salesforce.com

CITY San Francisco
SHARE OPENING PRICE FOR
JUNE 23, 2004, IPO \$15
AMOUNT RAISED \$126.5 Million
PRICE PER SHARE ON APRIL 11, 2006 \$33.26

RightNow Technologies

CITY Bozeman, Montana
SHARE OPENING PRICE FOR
AUGUST 5, 2004, IPO \$7
AMOUNT RAISED \$40 Million
PRICE PER SHARE ON APRIL 11, 2006 \$13.90

COREL'S 20 YEARS

Full Circle

Corel to go public, 16 years after first IPO.

Word processing and graphics software pioneer Corel may have the last laugh. Trading at \$1 per share in 2003, the Ottawa, Ontario-based company was delisted after investors wrote it off as a has-been. In its glory days 10 years ago, the company had briefly given Microsoft a run for its money. Then it floundered. Now Corel is back. Next step? Going public at an expected \$19 per share. Highlights from Corel's wild ride:

1985



Canadian entrepreneur and former Bell Northern Research lab expert Michael Cowpland starts Corel, trying to sell a desktop publishing system.

1989



Corel rolls out graphics program CorelDraw, which becomes widely popular among designers.

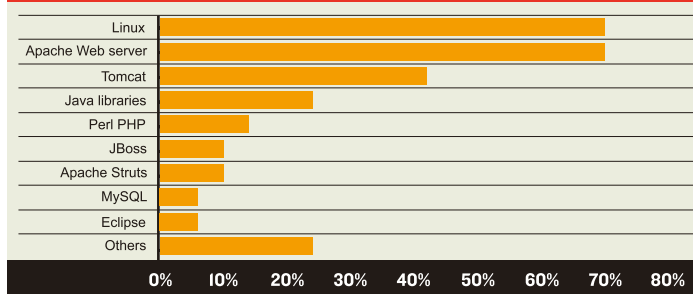
Corel lists first on the Toronto stock exchange and then the Nasdaq. At its peak, it has 1,400 employees.

1996



The company buys word processing software WordPerfect and spreadsheet program Quattro Pro from Novell for \$180 million, aiming to become an alternative to Microsoft.

Open Source's Popularity Contest



Percentage of businesses using open source (by brand)

Source: Forrester Research

Oracle, IBM, and Microsoft,” says Rick Sherlund, an analyst with Goldman Sachs. Unlike those proprietary software companies, Red Hat doesn’t actually sell software: it makes its money selling custom training and other services for open-source products that are most always free.

The JBoss acquisition, one of the largest-ever open-source deals, could mean big things for more than just Red Hat. It could send investors scurrying to buy stakes in other companies that build services around open-source software, long considered an interesting idea but not much of a business. Red Hat is one of the exceptions, posting \$79.7 million in profit in 2005. Its customers include AOL, VeriSign, and Morgan Stanley.

Other open-source startups, including database company MySQL and web application platform player Zend, could all come into play. Red Hat may well be looking to round out its

portfolio, says Merrill Lynch analyst Kash Rangan in a research note. But he adds a caveat: “Proprietary software companies such as IBM, SAP, Oracle, BEA, and TIBCO will also probably aggressively seek out such investments in order to protect against disruptive trends.”

With JBoss’ annual revenue growth exceeding 150 percent (expected 2006 revenue is \$40 million), the company was on industry radars. Oracle and BEA were both believed to be eyeing the startup. “Somebody has always been interested in acquiring this company,” says David Skok, a lead JBoss investor.

In the end, JBoss had more in common with Red Hat than other suitors. Both companies have built a business out of supporting and customizing services for free software. Now that the deal has given open source momentum, Microsoft and others could be feeling the pressure to unlock some code. **RH**

MOBILE BUSINESS

Learning to Run

Salesforce.com buys Sendia to mobilize apps.

Salesforce.com’s aim is to make it easier for employees to manage company inventory and customer orders on mobile devices—and it looks like the customer relationship management software firm just made another move in that direction.

The seven-year-old pioneer in delivering software services over the Internet made its first acquisition, picking up Santa Monica, California-based Sendia for \$15 million in cash on April 11. San Francisco-based Salesforce.com, in fact, started partnering with Sendia, a pioneer itself in “mobilizing” business applications, a year and a half ago.

The acquisition should speed up the trend of making business applications more widely available to workers on the go, but Salesforce.com has to be careful not to get ahead of itself. Its system enabling customers to use software applications online is already crashing—since December at least four times, resulting in hours of downtime for customers.

Customers have to hope its new mobile focus doesn’t distract anyone from fixing the problems. Analysts agree that Salesforce.com CEO Marc Benioff (pictured) got Sendia cheap, even though the company loses money. The price was less than twice the \$8.5 million Sendia got in funding since its founding in 2002, making for a sweet deal, thinks Pacific Growth Equities’ Mark Verbeck.

At that price, Salesforce.com spotted an opportunity before it reached the mainstream. Whatever else, says LucidEra CEO Ken Rudin, a former Salesforce.com exec, “it’s clearly an indication that [Sendia] was not able to generate that much revenue.”

Venky Ganesan, a lead Sendia investor and board member, says the market Sendia was targeting will take a while to develop. But he’s happy with the deal: “Sendia has been one of the few exits [in this field] where the investors have made money,” he says.

Salesforce.com should eventually make some money off of Sendia, too—if it can digest it without anything crashing. **RH**

JEFFERY NEWBURY



1999



CEO Michael Cowpland is charged with insider trading over his 1997 sale of Corel shares worth \$20.7 million.

2000



Corel tries to buy Inprise/Borland for \$2.44 billion; Inprise scuttles the deal with concerns over Corel’s mounting losses. Mr. Cowpland resigns.

Microsoft invests \$135 million to keep Corel, once a feared competitor, alive.

2003



Vector Buys Corel for \$120 million (\$1 per share). Staff is slashed to 480, one-third of its heyday headcount. Meanwhile, Mr. Cowpland settles insider-trading case for \$575,000.

2004



Corel buys graphics company Jasc for \$38.2 million, adding Paint Shop Pro and Corel Photo Album to its portfolio.

2005



Corel loses \$8.8 million on revenue of \$164 million; in 2004, it earned \$1.2 million on revenue of \$111.7 million.

2006



Corel files for IPO again. If the market prices the company at \$19 per share, as hoped, Corel could end up with a market cap of \$465 million.

Petri Dish Politics

Governments strut their stuff at BIO.

Political forces can spur innovation when huge sums are harnessed for specific programs like the Manhattan and Human Genome projects. But politicians aren't nearly as effective when it comes to creating a broad culture of innovation, which is why governments have to get the private sector on their side.

At the Biotechnology Industry Organization (BIO) annual meeting in Chicago last week, politicians from around the world were trying to do just that—kiwi politicians no less than others. “One thing that works to our advantage is that we have been late commercializers—and that is changing fast,” noted New Zealand Economic

Development Minister Trevor Mallard.

Technologies that would have been commercialized at least a decade earlier in the United States are still in his country's university labs, he said. New Zealand focuses primarily on building up agricultural biotech since agriculture accounts for such a significant part of GDP.

He said the New Zealanders were still skeptical of genetically modified organisms (GMOs), and admitted that venture capital and experienced management in the field was still limited, although growing. Still, there are signs of movement: In March of last year, AgResearch, Wellington's largest research

organization, formed—with VC firms Direct Capital and Inventages—a \$71-million fund called BioPacific Ventures. Two months later, kiwi initiatives got foreign endorsement of a sort when San Diego-based VC firm Finistere Partners launched a \$30-million fund targeting New Zealand companies.

Australia, of course, is out to be on the biotech map, too. Its biotech industry turned profitable in 2005, even if that was mostly due to larger companies in the space. Alan Carpenter, the premier of Western Australia, recently enlisted Barry Marshall, the 2005 winner of the Nobel Prize in Medicine, to help sell the outside world on the state's achievements in biotech. “You've got to be able to convince people that some of the things you're doing are unique,” Mr. Carpenter said.

The premier then made an eclectic assortment of claims—that Western Australia was home to several top research universities and institutes, and that the state had maintained a statewide public health database on citizens stretching back 30 years—and that Perth, the state capital, would benefit from being a major English-language city that shares a time zone with Beijing.

Significantly larger Singapore could share Mr. Carpenter's time-zone claim. But Philip Yeo, chairman of Singapore's Agency for Science, Technology and Research, had more important bio-



Singapore's planned biotech campus.

tech things to talk about.

The city-state's BioPolis space-age science park is now partially complete, Mr. Yeo reported. Having spent \$800 million from 2000-2005, and with the same amount set aside for the next five years, the government, he said, was now focused on training young talent early, rather than attracting experienced individuals.

To that end, the science agency runs a program that funds top undergraduate and graduate students who commit to spend several years working in Singapore. One-quarter of participating students are foreigners, and the program sets an even steeper condition for them—to participate, they must take up Singaporean citizenship. **RH**

Money Down Under

Australia's larger biotech companies turn the country's industry profitable.

	2005	2004
Revenues	\$2,361M	\$1,433M
R&D Expense	\$234M	\$173M
Net Income	\$88M	-\$17M
Number of Employees	8,350	9,180
Market Capitalization	\$9,076M	\$8,053
Total Assets	\$3,743M	\$3,909M
Number of Public Companies	78	68
Number of Private Companies	166	165

Source: Ernst & Young Global Biotechnology Report 2006, Beyond Borders, based on public company data

OUTTAKES



It's Biotech, Stupid

Former U.S. President Bill Clinton delivered his checklist of concerns at the BIO conference: “9/11 was a product of interdependence,” he said. “We need to spend the next few decades moving toward stabilizing this interdependence and integrating society.”

Mr. Clinton also said that rising seas were likely to have “negative consequences for food production” and he urged the biotech community to help alleviate the problem.

The United States needs a new source of jobs every four to five years, he added. “In the next decade, I think biotech can replace energy as the source of new jobs because I think it will take that long to work out all the data from the Human Genome Project.”

U.S. Stem Cell Troubles

Confusion and controversy surrounding how the United States will fund human embryonic stem cell research has fueled concern over the country's ability to keep pace with international efforts in the field. While policy makers, ethicists, and the public hash out their differences on the subject, a recent study shows that the U.S. is trailing other countries in publishing human embryonic stem cell studies.

"Outside the U.S., stem cell research is often funded as part of a nation's economic development scheme," says Jason Owen-Smith, a University of Michigan assistant professor in sociology and co-author of the study. That means therapeutic and development work would likely be patented and carried out in the country where initial research was conducted. As a result, U.S. companies could lose some of their competitive edge.

The study examined a total of 132 articles published between November 1998 and December 2004. Of the 10 articles involving human embryonic stem cells in 2002, about one-third were from U.S. research groups. By 2004, U.S. groups accounted for only one-quarter of the

77 publications. The study was published in April's issue of *Nature Biotechnology*.

As to why there is a gap between publications from U.S. and non-U.S. groups, the study's researchers are starting to point the finger at U.S. federal policies. In August 2001, President Bush announced that federal grants could only be used to fund research using existing embryonic stem cell lines.

"The level of federal funding is limited," says Jennifer McCormick, a postdoctoral fellow at Stanford University's Center for Biomedical Ethics and the study's other author. "Researchers have some uncertainty about what funding is going to look like for them." As a result, "that may be causing some to not enter the field," she says.

U.S. researchers could catch up to their international peers as more private organizations, states, and private equity markets start funding the work.

However, Mr. Owen-Smith says, a collage of different funding sources could create problems—for instance, backers could withdraw funds if research proves too costly, and states could change their grant eligibility stance. **RH**

Losing Ground

U.S. fails to keep up with international rates of publishing research involving human embryonic stem cells.

Number of publications or material transfer agreements executed



*A nonprofit stem cell research institute that also provides human embryonic stem cells for research purposes to scientists

Source: University of Michigan Assistant Professor in Sociology Jason Owen-Smith, and Postdoctoral Fellow at Stanford University's Center for Biomedical Ethics Jennifer McCormick

Biomet Rumors Run Amok

Wall Street is awash with speculation over the future of Biomet, the fourth-largest hip and knee manufacturer. Rumors that Biomet is poised for a buyout started in late March when the company's long-term CEO and co-founder, Dane Miller, suddenly resigned after almost 30 years. In his place, Vice President and General Counsel Daniel Hann took the helm on a temporary basis.



Former Biomet CEO Dane Miller

But industry watchers became convinced that changes were afoot at the Warsaw, Indiana-based company when it announced on April 6 that it had hired investment bank Morgan Stanley to explore "strategic alternatives." Now, analysts are running numbers to see who could potentially buy Biomet.

In the flurry of research notes that have been passing over the financial wires ever since, here's a take on Wall Street's collective pondering as to which company could be a possible suitor. First up, the titans of the orthopedic industry: Stryker, Zimmer, and Johnson & Johnson's DePuy. Although they have the deep pockets to finance such a deal, antitrust issues make them unlikely candidates. Among industry insiders best positioned to make a deal is Europe's Smith & Nephew. But it could be a financial stretch. Smith & Nephew has a market cap of \$8.6 billion in comparison to Biomet's \$9.6 billion. Some on Wall Street say that for Smith & Nephew to successfully strike a deal, the companies would more likely organize a merger as opposed to an acquisition.

Wall Street is also contemplating other medical technology companies that might be interested in adding to already diversified holdings. Leading candidates here include Medtronic and Abbott. But analysts question whether the move would detract from these giants' total sales growth. Other companies in the running could include the likes of General Electric.

Wall Street's chatter has moved so quickly that the collective predictions may amount to little more than conjecture. Analysts are now waiting for more word from Biomet. They are hoping that the company will give greater details about what it means to be exploring "strategic alternatives." For all anyone knows, it could boil down to finding the company's next permanent CEO. **RH**

Takeout Price

One firm wagers how much potential acquirers would pony up to buy Biomet.

Company	Estimated Price per Share
Johnson & Johnson	\$39
Medtronic	\$46
Smith & Nephew	\$44
Stryker	\$44
Zimmer	\$41
Average	\$43

Source: Banc of America Securities, Bank of America, company reports

Wireless Slayer



Henry Samueli is directing Broadcom to become a major chip supplier for all things wireless.

Henry Samueli must be proud. Proud of the fact that the company he founded 15 years ago has grown into a force in the chip industry. Broadcom, based in the Southern California city of Irvine, increased its profit by 88 percent to \$411.73 million in 2005 from \$218.75 million in 2004. The communications chip developer has been a darling of Wall Street: its shares shot up roughly 174 percent over the past year.

The company's good fortunes have come from years of heavy R&D spending even when it was not making a profit. After having an interim CEO for two years, Mr. Samueli, who is the company's chairman and chief technical officer, hired Scott McGregor as the permanent executive last year.

With a reputation as a business that attracts and makes good use of its engineering talents, Broadcom has become the top supplier of Wi-Fi and ethernet chips, and its semiconductors are found in a variety of products from telecom equipment to cable set-top boxes to cell phones.

The company is now gunning for the wireless market by widening its offerings of the main processors for third-generation phones. Its engineers recently put FM receiver on the same silicon for Bluetooth. After buying Athena Semiconductor for its low-power Wi-Fi and TV tuner technologies, Broadcom is working on chips for receiving TV signals on cell phones.

The company currently counts Chinese handset makers Ningbo Bird and TCL as customers and says its chips will make their

way into handsets made by one of the top global brands this quarter. Broadcom also won a key customer in Apple Computer, which uses Broadcom's video chips in its iPod.

The company will have to fight hard to win the wireless market, however. Just an hour south of its headquarters is its chief rival Qualcomm—both companies have been suing each other over patent and trade secret disputes that involve 3G chip designs.

Red Herring recently caught up with Mr. Samueli to ask him about what comes after 3G, Broadcom's legal troubles, and his wireless device of choice.

Q: The rumor is that Apple will add Wi-Fi to the iPod. Can you see Broadcom's Wi-Fi chips in the next Apple gismo?

A: We have demonstrated the technology, and they know its capability. The tech hurdle is over. It's a matter of them deciding whether they want to integrate it, and it's something they should comment on.

Q: There already is this buzz about the HSDPA (high-speed downlink packet access) technology, which can deliver even higher data rates than 3G. When will it become popular?

A: Broadcom is very focused on delivering HSDPA technology—this is where we are placing our bet. I think the serious deployment will start next year.

Q: Are you building WiMAX chips for cell phones?

A: I believe HSDPA may preempt a lot of need for WiMAX because with HSDPA you are getting multi-megabit service on your handset. It's not clear what the compelling advantage would be for WiMAX.

Q: Aren't you worried that your competitors will get a head start on WiMAX, which will give consumers the option to make calls over the Internet?

A: We are not religiously opposed to it. We are just practical and only invest our resources when we see a market developing. We are taking a wait-and-see attitude.

Q: The lawsuits and countersuits between you and Qualcomm must affect your product development, right?

A: Our product development plans are moving along just fine. I am hopeful that the market will not be slowed down by these lawsuits. The intent is to expand the market to create a level playing field for all the players.

Q: What device do you use to keep in touch with family and friends?

A: PalmOne's Treo 650. It has Broadcom's baseband chip and GSM/GPRS/EDGE as well as Broadcom's Bluetooth chip. I've been using it ever since it came out. 



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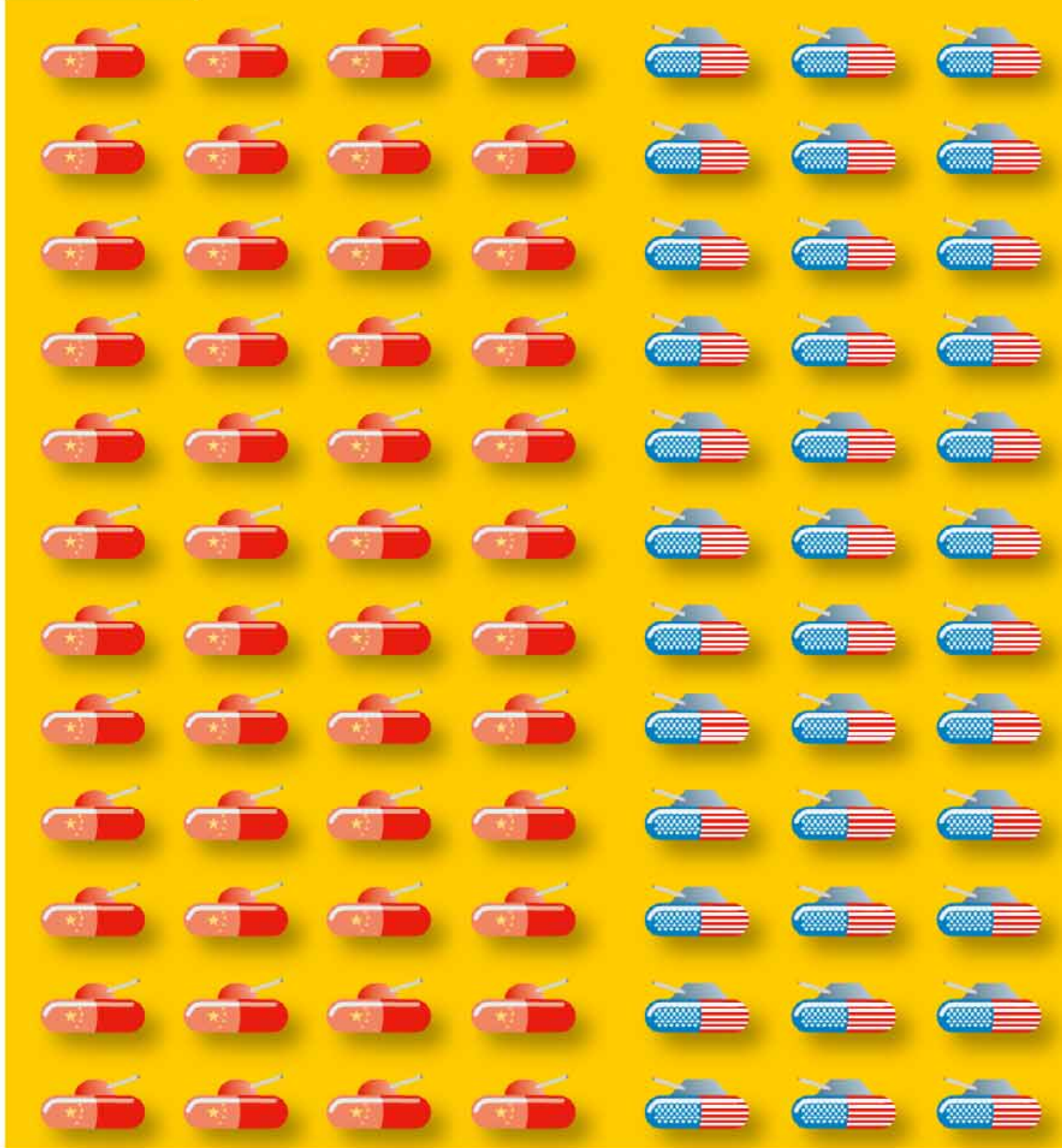
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China's War on Cancer

Will gene therapy advances give it an edge over the United States?

Li Dinggang lives for turning around lost causes. A surgical oncologist and director of the Gene Therapy Center at Beijing's Haidian Hospital, Dr. Li sees only the hardest cases: terminal patients from China and around the world, many given mere months or even weeks to live. "Most of my foreign patients come from the U.S., Canada, and Europe—from developed countries with advanced medical facilities," says



Dr. Li, whose center has treated over 200 Chinese nationals and 66 foreign patients to date. “Even in these countries, oncologists and cancer centers can’t do anything more for them. That’s the point at which patients contact me.”

Dr. Li sees himself as a frontline commander in the war on cancer, a role requiring all available weapons in the global arsenal. At Haidian Hospital, he has many of these at his disposal: traditional surgery, radiation therapy, chemotherapy, and cryosurgery—in which super-cooled gas is used to kill tumor cells.

But some of the most promising new weapons are being developed and field-tested in China. Most notable is Gendicine, the world’s first approved gene therapy drug and the centerpiece of Dr. Li’s practice. Developed by Shenzhen-based biotech firm SiBiono, it was approved by the Chinese State Food and Drug Administration (SFDA) in 2003.

Dr. Li calls Gendicine a “milestone on the order of penicillin.” Used in tandem with traditional treatments, it has added years to the lives of his patients and improved their quality of life, he says.

The Sputnik of Gene Therapy

Not everyone is convinced. Western experts point to the lack of transparency in Gendicine’s clinical trials, and the paucity of data in peer-reviewed journals.

That may be so, but the approval of Gendicine was a mini-Sputnik, lighting a fire under the Western gene therapy community just as the 1957 launch of Sputnik by the Soviet Union spurred American rocket scientists into action. It’s hard

to say where this leaves the West. Two U.K.-based companies have cancer-targeted gene therapy drugs in the pipeline; Oxford BioMedica’s gene therapy drug MetXia is now in Phase II of its clinical trials for pancreatic cancer, and London-based Ark Therapeutics’ brain tumor gene therapy product, CerePro, has completed its third and final phase of clinical trials and is now under review by the European Medicines Agency.

In the United States, Austin-based Introgen has a product called Advexin which operates on very much the same principle as SiBiono’s Gendicine. The drug is under regulatory review by the U.S. Food and Drug Administration for head and neck squamous cell carcinoma (HNSCC). Industry insiders expect approval within the next one to two years. Despite the similarities with Gendicine, Introgen CEO David Nance says his company is not currently involved in any litigation with SiBiono, and hints that he could end up in a licensing agreement with SiBiono or one of its Chinese competitors.

Insiders also predict that the U.S. and European Union will approve other non-integrational gene therapy products—where the gene package doesn’t actually integrate into the chromosome—in two to three years, according to Nigel Parker, CEO of Ark Therapeutics.

“I had no idea that this was going on in China,” says Alan Kingsman, CEO of Oxford BioMedica. “Initially I didn’t understand how this could have happened first in China and not in the U.S. But as one looks at the story, it’s hard to find anything wrong.”

“This is a wake-up call to America,” says Mark Kay, president of the American Society of Gene Therapy (ASGT) and director of the Stanford University School of Medicine. “We need to look at some of the regulatory hurdles, and the funding issues: right now, funding for biomedical research in the U.S. is really hurting, and it’s short-sighted to think this doesn’t hurt our economy in the long run.”

Considering Gendicine’s potential impact on the war on cancer, it’s a shame that China didn’t let outside experts in on it. “An extraordinary opportunity to have had a really big impact was lost,” says Barry Carter, executive vice president of Seattle-based Targeted Genetics. “You can’t tell from the published data what the real trial design was, what the proto-

col was—and that’s too bad.”

But some gene therapy experts accept SiBiono’s claims at face value and are satisfied that Chinese regulators took a hard look at the data. “The Chinese authorities have gotten ahead of the West,” says Mr. Parker. “They’ve seen a lot more data, and they’ve seen the first approval, and I think it’s going to be good for the field.”

Miracle Cancer Drug?

11 million people contract cancer each year, with China reporting 2.2 million new cases, according to the International Agency for Research on Cancer (IARC). Cancer typically accounts for nearly a quarter of all disease-related deaths in China.

But real breakthroughs have been a long time coming. “Mankind’s ability to treat tumors had not substantially advanced in 50 years,” says SiBiono CEO Peng Zhaohui, who led the team that developed Gendicine. “Overall success rates from surgery have remained at about 22 percent, radiation at about 17 percent, and chemotherapy at about 5 percent,” says Mr. Peng. “We have long known tumors are a disorder of the genetic material—we need to attack the disease at the genetic level.”

Something akin to a software patch, Gendicine introduces the equivalent of lines of code by using a virus. The drug uses a common and mild adenovirus called Ad5 as a vector, or delivery vehicle, to insert its genetic payload into the nuclei of tumor cells. The virus, which is cultivated in human embryonic kidney cells, has been genetically engineered to prevent replication, and modified to attack only tumor cells.

The viral vector delivers the p53 gene, which has been recognized for its role in tumor suppression for over 30 years. When present in the cell nucleus and functioning properly, the gene expresses a specific protein that triggers cells with damaged DNA to, in effect, commit suicide. But in about 60 percent of tumor tissue, that critical gene is either absent or non-functional. The gene package delivered by adenoviral vectors does not actually integrate into the chromosome, but its presence in the nucleus is sufficient to express the necessary protein.

Gendicine entered clinical trial stage in 1998. SiBiono elected to test the drug on late-stage patients with HNSCC, a common

Every year, 11 million people contract cancer, with China reporting 2.2 million new cases.

THE INTERNATIONAL AGENCY
FOR RESEARCH ON CANCER



Dr. Zhao Jin undergoes treatment for uterine fibroids at Peking University People's Hospital.

form of cancer that represents about 10 percent of all new reported cases in China. The company reported that 32 percent of patients receiving Gendicine along with radiation therapy experienced partial regression of tumors, and 64 percent full regression.

China's SFDA approved the drug specifically for HNSCC, but Mr. Peng says Gendicine has now been tested on more than 50 types of carcinoma, and has demonstrated that it can even be effective against particularly tough-to-treat forms, including ovarian and pancreatic cancers.

A Gendicine treatment usually involves a four- to six-week course, with weekly injections of one to two milliliters of the drug either directly into the tumor tissue or an artery that feeds the tumor-afflicted area. Each milliliter contains a trillion p53-carrying viral particles. In terms of drug charges alone, a single dose of Gendicine costs about \$420, a full course about \$3,000, which is roughly twice the average annual urban Chinese income. "Traditional" radiation, surgery, and chemo therapies cost considerably less.

Patients typically experience fever and occasional cold symptoms—the body's natural response to what it assumes is a

viral attack—but nothing more. And these side effects may, in fact, point to a critical component in how the drug works, says Dr. Li. The viral vector itself seems to trigger a strong immune response, marshaling

"We have long known tumors are a disorder of the genetic material—we need to attack the disease at the genetic level."

PENG ZHAOHUI, CEO, SIBIONO

the body's natural defenses, such as NK (natural killer) cells, and enabling them to more effectively attack tumor cells.

Mr. Peng and Dr. Li have also observed what they describe as a synergistic effect between Gendicine and chemotherapy, and between Gendicine and radiation therapy. Mr. Peng says his gene therapy drug multiplies the efficacy of chemo and radiation by a factor of three—an effect he suspects is due to the corrected p53 gene's down-regulation, or dampening effect, on the multi-drug resistance gene in tumor tissue. Resistance to chemo drugs is reduced, and "the chemicals aren't bootied out," Mr. Peng explains.

Jesse's Ghost

If China is now threatening to edge out the U.S. for the lead in gene therapy, it's because American gene therapy research is still haunted by the ghost of Jesse Gelsinger, an 18-year-old Tucson resident who died in 1999 of multiple organ failure in Philadelphia after voluntarily undergoing trial gene therapy. "That inflicted heavy losses on the entire endeavor of gene therapy and gave conservative opponents a rallying point to marshal their forces," says Dr. Li.

If conservatives found something to rally against, of course, it was because the Gelsinger case was widely reported, since failures often get more ink than success stories in the West. But Dr. Li is right on one point—while there are important differences between the vector used in trials now and the one used on Gelsinger, everything got lumped together in the U.S. public's mind.

That said, public opinion can shift as bad news recedes. Many experts, including the ASGT's Dr. Kay and Ark Therapeutics' Mr. Parker, think it won't be long before Advexin is finally approved.

Mr. Peng acknowledges that his trials were small by U.S. standards: his Phase II and III trials involved only about 135 individuals, and in Phase I there were only 12 participants. But six years after completing that trial, he says, 11 of those 12—all of them with late-stage laryngeal cancer—are still alive, and nine have had no recurrence of the disease. The drug's safety record, Mr. Peng contends, has been well established over the eight years since clinical trials began. "Over 3,500 patients have been treated, ranging in age from small children to octogenarians," he says—

The market for gene therapy products will reach \$5.73 billion by 2011.

FROST & SULLIVAN

with no violent reactions of the kind Jesse Gelsinger suffered. One colorectal cancer patient from Shanghai received 85 doses of Gendicine, says Mr. Peng. Refusing chemo, radiation, or invasive surgery, the patient was given two weekly doses and is still alive today.

Mr. Peng says SiBiono, which is privately held and funded through two Chinese

corporate investors and substantial national, provincial, and municipal grants, is now seeking American partners to help bear the costs of planned U.S. clinical trials of Gendicine that may eventually win it FDA approval. These trials could take five to six years and cost upward of \$100 million, says Mr. Peng—over 10 times what trials typically cost in China.

Meanwhile, SiBiono is expanding its production facilities in Shenzhen to increase production of the drug from the current 180,000 doses per year to 1.5 million. The company does not release revenue numbers, but unofficial industry estimates put its 2005 revenues in the neighborhood of \$150 million. SiBiono's early lead may prove highly lucrative: a May 2005 Frost & Sullivan report projects that the market for gene therapy products will reach \$5.73 billion by 2011.

"In the next decade we will see more and more Chinese scientists joining the ongo-

ing global war against cancer, contributing original research articles, and conducting clinical trials matching international standards," says Benjamin Chen, chief science officer and director at Burrill and Company's greater China group.

For him, companies like SiBiono and Shanghai-based Sunway Biotech—which had its adenoviral-based cancer drug approved by the SFDA last year—are "seedlings that will one day lead to a lush forest in China." With a few significant successes, Mr. Chen says, "Chinese cancer research will then begin to enjoy a reputation—and VCs will begin to pay attention."

More data and transparency might provide the miracle cure that could make that happen. By then, though, researchers in the U.S. and Europe could be grabbing all the venture cash. The country that catapulted Sputnik into space 50 years ago, it's worth remembering, ended up losing the race. **RH**

A Sound Approach to Cancer Fighting?

Haidian Hospital's Dr. Li is looking to add another weapon to his anti-cancer arsenal this year: a \$500,000 high-intensity focused ultrasound (HIFU) system from Beijing-based China Medical Technologies. HIFU is a non-invasive treatment that cooks tumor tissue dead with sound waves. The technology, pioneered in Europe over 30 years ago, had limited applicability to oncology until Chinese scientists developed adequate imaging and guidance technology.

By the end of 2005, HIFU had been used in China to treat more than 20,000 patients, including a number of non-Chinese patients for whom HIFU treatment is unavailable at home. China Medical, one of several Chinese manufacturers, reports impressive response rates: 80 percent of patients saw partial or total remission of tumors following a course of HIFU treatment. But like Gendicine, HIFU is nowhere near approval in the U.S. for cancer therapy. Thus far, only one company, Israel's InSightec Image Guided Treatment, has received FDA approval, and that is limited to the treatment of uterine fibroids—non-cancerous but often painful growths affecting about 20 percent of women.

A similar device, Sonablate, which is manufactured by Indianapolis-based Focus Surgery, has received FDA approval only as an investigation tool. Another, the Ablatherm probe used in prostate cancer cases—jointly developed by France's INSERM (National Institute for Health and Medical Research) and French firm EDAP Technomed—is currently in use in the E.U., Canada, Russia, and South Korea.

China's big contribution to HIFU technology, says Douglas Chinn, a urologist in Arcadia, California, who performs HIFU treatments in Mexico, has been to greatly expand the range of HIFU applications in cancer treatment. "The Sonablate and

Ablatherm devices"—relatively small units that use rectally inserted probes—"are primarily created for prostate cancer," says Dr. Chinn. "China Medical Technologies has approached this as a universal device that can be adapted to any part of the body that can be safely accessed."

China Medical, which listed on the Nasdaq in August 2005, is one of seven companies in China now manufacturing HIFU equipment. Chongqing-based Haifu and Shanghai-based Aishen are its closest competitors, but China Medical enjoys a 70 percent market share in its home market, according to Charles Zhu, vice president of business development and investor relations. The company has installed over 200 of the approximately 300 HIFU systems now in use in Chinese hospitals. Still, market penetration rates remain low. "There are 6,000 medium and large hospitals, so penetration, including our competitors, is only about 5 percent."

Mr. Zhu says China Medical has recently signed an agreement with the University of Washington Medical School to conduct clinical trials in the U.S., and has already submitted preliminary application materials for investigative device exemptions, which would allow a device to be used on a limited basis prior to regulatory approval by the FDA. The company has also lined up a distributor in South Korea, and hopes for Korean approval this year. It has also begun the application process in Japan, but does not anticipate approval for at least four years, Mr. Zhu says.

"It will take time for doctors and patients to accept an emerging technology like HIFU," he explains. "They are trained to use conventional radiation therapy and chemo. They understandably want to see more clinical data, and more long-term follow-up before they're convinced." **RH**



New Treatments And Tools in India

A cancer-fighting device offers patients hope.

Parthasarthy Rengarajan, an ear, nose, and throat surgeon in Bangalore, walks out of his clinic after seeing over 30 patients, flashes a smile, and gets ready to drive back home. No one would guess that the 57-year-old doctor was diagnosed 18 months ago with a deadly form of cancer—an aggressive brain tumor called glioblastoma multiforme.

Having lost all hope with standard treatment, he decided to try a new, experimental treatment being tested locally—and it worked so well that Dr. Rengarajan was back to operating on others in no time.

“I am over 80 percent fit with no trace of any recurrence yet,” he says. Dr. Rengarajan and scores of others with terminal cancer have survived far beyond the time physicians gave them, thanks to a new technology called Rotational Field Quantum Magnetic Resonance.

RFQMR is similar to conventional MRI (magnetic resonance imaging) but functions very differently in the way it attacks tumors. Since there was no control group in its Phase I trial, and therefore no measure of how RFQMR results compare to conventional therapy, hard comparative data won’t emerge until the Phase II trial. However, the new therapy surpasses what chemotherapy and radiation can do in curing sufferers, a proponent contends. What’s more, it costs only a quarter of what chemo costs, says Rajah Vijay Kumar, the chief scientific officer at Scalene Cybernetics’ Center for Advanced Research and Development.

Advances in RFQMR and better, cheaper ways to diagnose cancer early are welcome advances in India, where 700,000 new cases of cancer are detected every year. About 50 percent of patients die now, half the survival rate of cancer patients in developed countries.

More than 75 percent of cancer cases in India are detected too late. Lack of awareness, poverty, and a dearth of inexpensive diagnostics all contribute to this deadly spiral.

Despite its fast-growing biotech sector, which is projected to top \$9 billion by 2008, India still has no company with a cancer diagnostic product in the pipeline. Most work done in the country is contract research for larger firms in other countries. “The high-end science required for molecular diagnostics has only recently begun to be undertaken,” says B.V. Ravi Kumar, managing director of XCYton, a

In a country where paying for cancer treatment often requires selling house and home, relatively inexpensive diagnostic tests offer tremendous hope.

diagnostic firm in Bangalore.

In a country where paying for cancer treatment often requires selling house and home, relatively inexpensive RFQMR and new diagnostic tests, even if they are in their developmental infancy, offer tremendous hope.

Zapping Cancerous Tumors

Mr. Kumar has worked with RFQMR for over a decade but only started trying it on cancer cells after he and V.G. Vasishta of the Institute of Aerospace Medicine (IAM) in Bangalore saw positive results working with acute osteo-arthritis patients. “We realized that we were able to re-grow the cartilage, proving the textbooks wrong,” says Mr. Kumar.

So, Mr. Kumar built a device called a Cytotron, which targets tumors with electromagnetic beams. The beams increase the cell membrane electric voltage, which falls in cancer cells after they become malignant. As the voltage rises to its normal level, the natural cellular cycle of cell death is resumed and the tumor stops growing.

The Cytotron’s intellectual property is protected under a Patent Cooperation Treaty application and remains the only device in existence, according to Mr. Kumar, to use nuclear resonance for in-vivo tissue engineering. The multi-frequency beams that emanate from the device range from 400 hertz to 100 kilohertz. It works on the principle that each living and non-living structure has a certain natural frequency and when two objects with similar frequencies come near each other they can communicate without physical touch. Thus, the tumor cells can be given instructions to activate their normal cell cycle of apoptosis, or programmed cell death.

So far, 106 terminally ill cancer patients have been treated: 60 percent are still alive and 30 percent of them have gone back to work and normal lives. “Patients who died had severe complications from chemotherapy and radiation and



did not have time to respond to our treatment,” says Dr. Vasishtha, the principal investigator in the study.

Using conventional MRI, the natural frequency (or electromagnetic signature) of the cancerous region is calculated. A magnetic field, corresponding to the signature, is then applied to the region using the Cytotron. This results in enhanced resonance of the cancerous cells with the applied magnetic field. As a result, researchers believe, a tumor suppressor protein, p53, gets activated, which initiates the programmed cell death and the stops the tumor’s growth.

Normally, 28 one-hour sessions in as many days are given, although some patients require less aggressive treatments. “Most patients, even those on morphine, stopped use of painkillers by the fourth exposure,” says Dr. Vasishtha. “What is surprising is that the tumor stops growing and spreading even after eight months, where the tumor doubling period was about one month.”

Dramatic tumor shrinkage is a hallmark of the therapy. “One of my liver cancer patients, who was given a few weeks to live, is living a healthy life well over one year [later],” says Vishwanath Hiremath, an oncology surgeon with Mallya Hospital in Bangalore. “What is most astonishing is that the massive tumor from one side of her liver has disappeared and she is absolutely pain free,” he says.

Cyclotron has completed its Phase I trial with 40 patients. Mr. Kumar and Dr. Vasishtha have since recruited 100 patients for Phase II trials set to begin shortly. “Since Cytotron is a device [and not a drug requiring Phase III trials], we will be able to commercialize the technology within three years,” says Mr. Kumar. Indeed, he has initiated moves to get the device certified in the European Union. At \$250,000 a machine, Scalene Cybernetics has so far built five, all of which are now in use.

The duo say they are swamped with requests from patients as well as funding



The Cytotron device has treated more than 500 arthritis and cancer patients.

offers. The hurdle ahead of scaling up the project is getting the paperwork through the bureaucracy, IAM being a unit of the Indian Air Force.

Researchers say they have treated a host of different cancers beyond the bone, blood, and breast variety with the Cytotron. “But the best results have been from brain tumors and lung,” says Mr. Kumar.

As the Cytotron enters into Phase II trial, Mallya Hospital’s Dr. Hiremath says researchers will need to analyze the data and classify which types of cancer respond best to the treatment to get a better fix on RFQMR’s success rates.

Late Detection, Expensive Treatment

On the detection side, a new optical diagnostics kit was tested in January in the southern state of Tamil Nadu. The kit was developed by Vadivel Masilamani, a laser physicist from the Indian Institute of Technology, Madras, who is currently at Saudi Arabia’s King Saud University in Riyadh.

Using a laser on body fluids like blood

and urine from 274 people, the equipment was able to screen out cancer patients from non-cancer patients, and monitor disease progression and regression with over 90 percent efficacy, according to Mr. Masilamani. Laser diagnosis was also able to identify 28 new persons without lumps or masses, but with other signs of possible cancer merit-ing further investigation.

Mr. Masilamani says his next step is to demonstrate the technology for the Indian Council of Medical Research in Delhi to get approval for a bigger clinical trial. Masila’s Diagnostics, as the kit is called, adds up to a non-invasive, easy-to-administer diagnostic tool costing less than five dollars.

It also adds up to a lot of hope to primary healthcare centers in developing countries. Mr. Masilamani says he intends to start a diagnostic center in India, and while he’s not tending to that, look for entrepreneurs to commercialize the technology worldwide. 





Empowering consumers through new technology.

Chris Turnquist, VP Value Chain Services.

In today's competitive retail industry, three key market drivers are creating increased pressure on business owners: more savvy and educated consumers, increased consumer segmentation and reduced consumer loyalty. These factors, combined with ever-increasing competition, are negatively impacting the bottom line of retail stores of every size and in every part of the country. They are also heavily contributing to in-store problems; including items being "out of stock," high employee turnover, increased markdown pressure, lower profit margins, increased inventory and labor costs.

Increasingly, retailers are feeling the pressure of irreversible market forces that are changing the way they serve customers and stay in business. Most notably, access to the Internet has accelerated and amplified the pressure, giving consumers more choices and freedom to explore value product alternatives.

How can businesses address these market challenges to continue or strengthen their position in today's Digital Networked Economy?

BT's Solution - The Empowered Store

The empowered store is a combination of technology and process that enables the retailer to leverage all of its resources to empower customers, sales associates and suppliers to collaborate and maximize store performance. Thousands of progressive retailers are already successfully putting elements of this winning approach into action with the help of strategic partners, like BT. The result? They are gaining significant improvement in marketplace penetration.

There are four key elements that make up the heart of the empowered store:

1) Consumer Empowerment is about extending value from the retailer to the consumer by providing easy-to-access content and commerce – wherever they are located. Self-service and wireless capabilities make consumer empowerment possible by giving consumers the information they need to make an educated buying decision.

2) Sales Associate Empowerment links store associates to resources, further strengthening their effectiveness and ability to serve their customers. The latest technology provides sales associates with services and capabilities that enable them to more effectively serve the customer at every stage of the sale and proactively adapt to emerging customer demand patterns.

3) Supplier Empowerment is about shifting access, content, inventory, and responsibility from the retailer to the supplier. This allows the supplier to more effectively manage their demand chain and increase insight into product lifecycles. While retailers continue to take an active role in improving supply chain execution, this process includes empowering processes and technology to serve the consumer in real time.

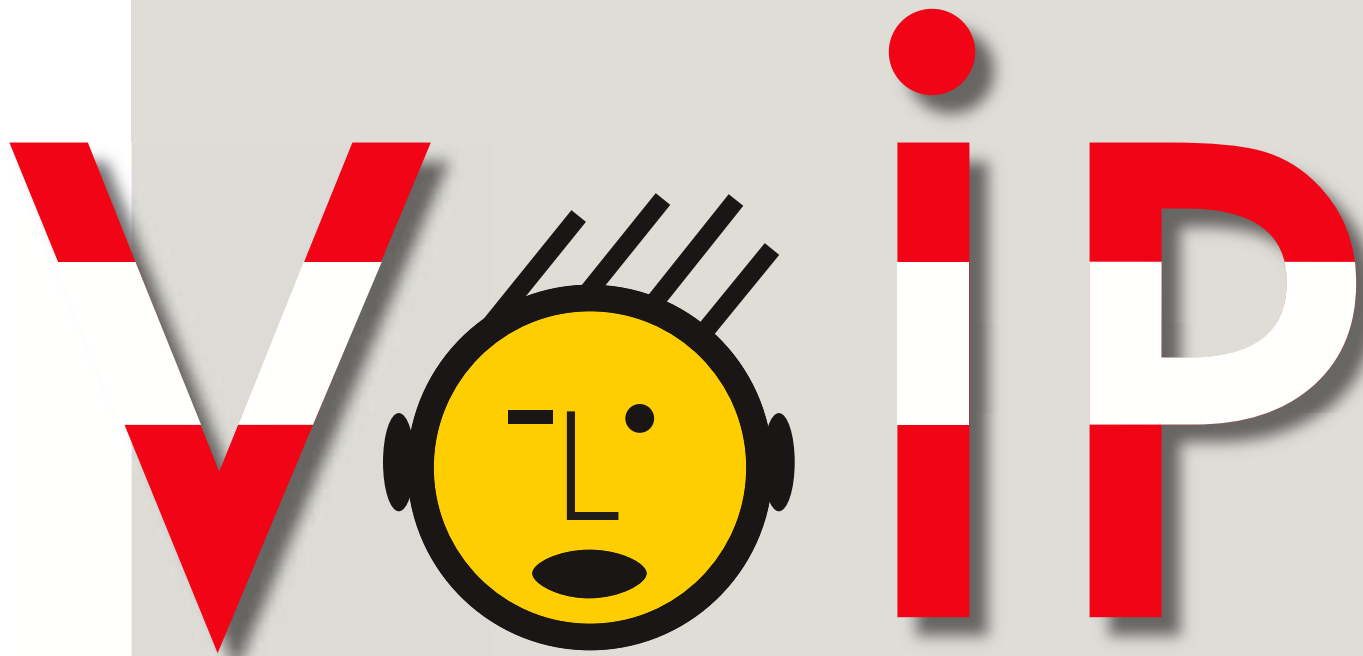
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Sequoia's Skype Challenger



When two hot Austrian entrepreneurs compared VoIP and search data, a light went on.

At first, Haim Sadger didn't feel right in Vienna's old inner city. It seemed like a very odd place to make a tech investment.

The Israeli's comfort zone didn't extend much beyond industrial parks in the burbs. An Intel executive before becoming a VC partner in 1999, Mr. Sadger had spent the last six months looking for a good VoIP property for Menlo Park, California-based Sequoia Capital to pump some cash into.

VoIP had been heating up fast since October, when eBay paid more than \$4 billion for Skype. It had changed global telecommunications and that thought was centermost as Mr. Sadger entered the cluttered offices of Jajah, a fledgling VoIP firm that was little more than two entrepreneurs armed with an idea, a prototype setup, and a small gaggle of engineers.

The concept was simple; so simple, in

fact, that the worry now is that it will attract swarms of imitators. Callers simply type numbers into a computer—no special software, no headset. Using Jajah's prototype, Mr. Sadger called Israel on his cell phone at a 95 percent discount. He headed back to California and told his partners he'd found his Skype. "My only question was, 'can this scale to support hundreds, thousands, or even millions of users?'" he recalls. "I kept thinking, 'if it can, then we really have something here.'"

Three weeks later, Sequoia cut a deal with Jajah's two developers. Then it put 18 engineers to work in Ra'anana, outside Tel Aviv, to see how the system—sprouted from roughly \$12,000 worth of off-the-shelf technology and nurtured on some clever ideas—could change the world as Skype had.

"When we started, we developed software similar to Skype's, but better,"

says Daniel Mattes, one of the two serial entrepreneurs who founded Jajah. "Our software consumed less bandwidth and it was compatible with more devices."

Keep It Simple

Mr. Mattes and Jajah co-founder Roman Scharf incorporated the company in January 2005, naming it after F. Jajah Watamba, an Australian engineer instrumental in conceiving the technology.

They were content to compete with Skype on its turf until an IDC study found that only 3 percent of the Internet community actually used VoIP, while 95 percent used search engines. To the casual reader of industry reports, the two numbers might seem as disconnected as a finding linking car and donut sales. But to these founders, the numbers said only one thing: Keeping tech simple greatly enhanced the odds that it would be embraced.

"This changed our world," Mr. Scharf says. "We blended the ease of use of search with VoIP. The business of downloading software or buying hardware and headphones is all very geeky—it was not what normal people were used to."

Jajah engineers spent three months coming up with a product that emulated the ease of use of search technology—no downloads, no hardware purchases, no knowledge of firewalls required. "By the time Haim came over we had not yet launched the beta version of the new product, but he saw enough to be impressed," Mr. Mattes says. "Four weeks after he met us, the investment money was in our account. The process went through on fast-forward."

In February, Jajah launched from its new headquarters tucked into Sequoia's offices in Menlo Park. The company maintains its core engineering in Israel

and its network operations in Dublin, Ireland, where its neighbors include eBay and Amazon. The centerpiece of Jajah's network is a cluster of web servers, database servers, and private branch exchanges—kind of a showcase example of how Internet communications and old-fashioned, last-mile telephone system signaling can make a powerful combination.

Expanding capacity only requires adding machines that cost up to \$2,000, including licenses. "This is not a Google-sized operation," Mr. Scharf says. "The main bottleneck for most VoIP services is the quality of the last-mile bandwidth, but we use the landline and the cell phone infrastructure for the last-mile connection, and that's limitless."

Jajah purchases telecommunications access minutes from wholesalers such as Level 3 and Global Crossing to provide last-mile connections for both ends of a call. Most of the routing of the call between the last-mile connections happens over the Internet.

Jajah initiates and terminates calls. But routing everything through the Internet means that someone in China can chat with someone in the United States at local rates. "We are unique in that we combine the best of the telephony world, which is the last mile, with the best of the VoIP world, which are the rates," Mr. Scharf beams. "If your grandmother can Google, she can Jajah."

There are a lot of Skype wannabes—the cost of entry in VoIP is low. Jajah was one before it dispensed with software downloads and headsets. Now, portals like Yahoo are integrating web technology and traditional telephony to attract users.

"It is a gathering storm. These companies are all redefining VoIP," says Dave Lemelin, a senior analyst with In-Stat. "Jajah will be very competitive among people who don't want to get involved in too much technology, and customers who don't have broadband."

But Will Stofega, research manager, VoIP services at IDC, wonders if Jajah's interconnection with the public network won't be a problem. "Jajah is playing a bit of an arbitrage game with the wholesalers of phone minutes so they have that as a concern," he explains. "Skype has a lot of capital behind them so the companies just looking to compete with them have a daunting task ahead of them. Jajah will have to bring something unique to the game."

Mr. Mattes believes that engineering expertise and Jajah's plan to continue to innovate at a rapid rate will keep its competitors at a distance. "Our entire process is patent-pending but we will not depend on patents to cover us. We have developed some pretty sophisticated CODEC technology that is not easy to develop," he contends. CODECs convert analog voice signals to digital. "We are moving very fast. By the time a competitor develops something we have, we are already months ahead," adds Mr. Mattes. "We don't want to spend time in court defending patents—our defense will be innovation."

Jajah plans to add a premium conference call service that automatically connects participants at pre-arranged times. All the conference leader has to do is type the numbers on the Jajah web page and set the time. When the time rolls around, the system will call the conference initiator first, then the other participants, linking them in.

Moving Forward

Jajah has signed agreements with companies to embed its service in other applications—like Opera Software's Opera Mini, a browser for Java-enabled mobile phones. That deal signed just this month adds a critical dimension: Callers will be able to dial directly from browsers on their cell phones, bypassing computers.

And thanks to another deal with Symbian, the maker of the Symbian cell phone operating system, millions of people using that platform will be able to use Jajah from their phones.

Jajah's engineers are working on detaching the mobile version of their technology from the computer. For the moment, their solution breaks their own no-downloads-required rule: To get Jajah access from his mobile, a user registers and downloads a piece of software that installs into the operating system.

As Mr. Mattes explains it, when he dials a call in the usual manner, the software routes it through the Jajah network—at considerably less cost than what the cell phone user is normally charged.

"My wish is to get to the point where users can just click on a person's name in a web browser and Jajah will place the call," he says.

He might also wish, hope, and pray that too many other startups don't wish the same thing. ■■

"If your grandmother can Google, she can Jajah."

ROMAN SCHARF,
CO-FOUNDER, JAJAH

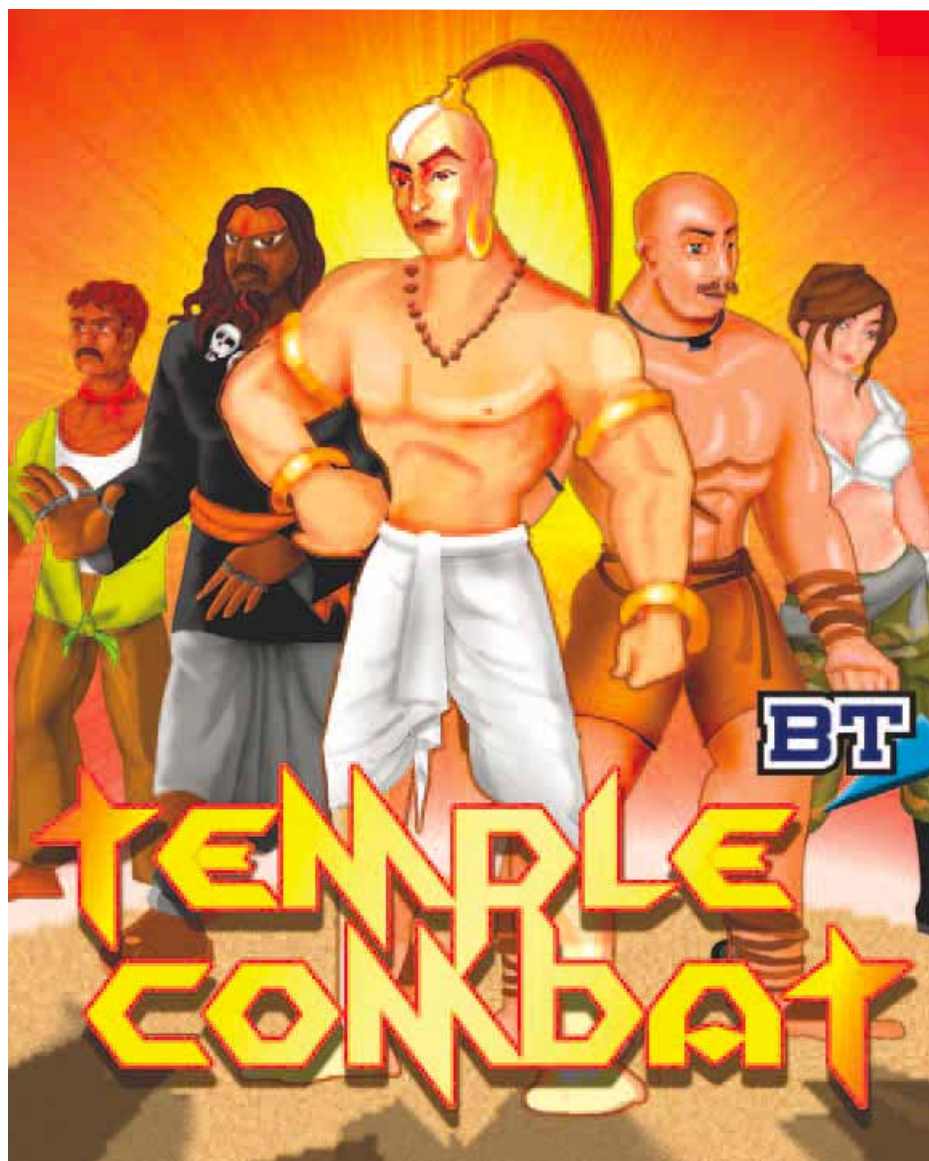


The Games Indians Play

On the subcontinent, they're either dreaming up games for cell phones, or eagerly devouring them.

“The Indian market is ready to explode because people want value-added services on their phones.”

MOHIT BHATNAGAR,
VICE PRESIDENT, AIRTEL



His monkey face, muscular human body, and simian tail may not appeal to gamers in the West, but for those familiar with the ancient epic of Ramayana, there's nothing strange about this devotee of Rama, who fights evil, traverses oceans, lifts mountains—and easily holds his own with Spiderman, at least with India's mobile gaming fans.

Indiagames got the worldwide rights to make a mobile game in time for the Hollywood blockbuster's release—just as another Indian game developer came out with a game based on India's first full-length animated feature film, *Hanuman*.

Both proved very popular, clocking between 20,000 and 30,000 downloads a month for over six months now, says Sanjay Trehan, head of broadband and content at Delhi-based Times Internet, a unit of India's largest media group, Bennett, Coleman & Co. There's a reason for

all this madness: a recent survey by Pyramid Research showed that nearly a third of cell phone users in India play games on their mobiles, and gamers are showing a growing preference for local content.

Tata Indicom, for example, recently started marketing a popular homegrown comic strip called *Uncle Pai*. Interestingly, the strip was originally printed in English for city kids to learn about Indian classics. Adapted to CDMA phones—with speech balloons in several languages—they turned out to be a low-cost way to repurpose the strip and generate revenue in several other language markets across the country.

“The Indian market is ready to explode because people want value-added services on their phones,” says Mohit Bhatnagar, vice president, alliances, at Airtel, India's No. 1 wireless operator. “Game downloads are increasing 400 percent year on year.” But just how fast the market



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is growing is a matter of opinion. Arun Gupta, CEO of Mauj Telecom, reckons there are currently 600,000 game downloads a month; Rajesh Rao, CEO of Dhruva Interactive, a Bangalore-based animation and gaming company, puts the number closer to 1 million.

Running the Numbers

India's wireless-game market will generate annual revenues of \$336 million by 2009, according to projections from Delhi-based Nasscom, the India software industry body, and U.S. research firm InStat/MDR.

An analyst at Mumbai-based equity research firm SSKI says he expects the wireless value-added services market to grow from an estimated \$77 million to \$844 million in 2010. Games constitute about 6 percent of this revenue today but their share is expected to rise to 8 percent by 2010. That's much less than the \$336 million projected by InStat/MDR and Nasscom. "In a market that's growing by over 50 percent every year, there can be no accurate estimates," says Mr. Rao. "The market is so dynamic that I really cannot say for certain how fast it will grow."

Short messaging service (SMS) tends to dwarf all comers in the value-added services, accounting for 80 percent of India's VAS market. Next comes ring tone downloads, followed by games. Alok Shende, an analyst with Frost & Sullivan, reckons a 6 to 8 percent VAS share for games is about the norm. "Even in Korea, VAS accounts for just 16 percent of a mobile operator's total revenues. Of this, games take up about 10 percent," he says.

It's a nice story so far, but Pyramid analyst Nick Holland points out that there are obstacles to growth: a third of Indian mobile users, for instance, remain cut off from serious gaming for lack of decent handsets like Java-enabled phones that support games.

It seems there are problems that even the amazing Hanuman cannot solve. But Reliance Infocomm has been working on it, and now offers over 60 games that run on black and white displays—in a variety of Indian languages.

The most popular games tend to be those based on cricket, Bollywood movies, local TV serials, mythic characters, and car and bike racing, often with celebrities as leading characters. The biggest hit so far has been *Sholay*, based on the blockbuster Bollywood movie of the same title.

The action thriller packed movie houses in the country when it released in 1975 and still draws audiences when it periodically returns to the big screen. Rajiv Hiranandani, CEO of Mobile2Win, the company that created the game, reports over 1 million downloads, encouraging results as it prepares to release a series of 3D games. Part 2 of *Sholay*, a multi-player game, should be ready for downloading within months.

For Indiagames, a company that started developing games for the local market and had to move into contract manufacturing for Hollywood studios to survive, life has finally come full circle. Over 25 percent of its games are now targeted specifically at Indian audiences.



"Even a 20 percent success rate of our portfolio is enough to make money," says CEO Vishal Gondal. "The market has grown 10 times in one year."

Meanwhile, Mauj Telecom, which recently received \$10 million in venture funding from Westbridge, Intel Capital, and Sequoia Capital, is making inroads in games using regional languages. CEO Mr. Gupta says he expects games to generate 40 percent of its revenue over the next couple of years. "Games around festivals such as Christmas, Germany's Oktoberfest, and Indian festivals such as Diwali and Holi are popular," he says, "but only if released at the corresponding time." Mr. Gupta also points out that India's classic love stories are proving popular in regional languages.

Over a dozen companies are now serving the local market with local themes. "The more the merrier," says Dhruva's Mr. Rao. "We compete with so many other types of entertainment, so content needs

not only to be compelling, but also plentiful and variegated," he says.

Mr. Rao finds that most Indians game casually, to pass the time while waiting in queues or while commuting. So, the games are designed to be entertaining and are priced low: between a dollar or two per game. As India's wireless population grows by 4 million subscribers every month, industry players will benefit by having a new revenue stream and channel for selling their entertainment content, says Deepak Kapoor, PricewaterhouseCoopers' Indian entertainment & media practice leader. Since competition has sliced talk-time rates to about two cents a minute, revenues from gaming should make up for any losses incurred on voice calls, he says.

No surprise, then, that carriers are pushing mobile games. Hutch, in collaboration with Indiagames, just launched a "try and buy" offer that's been snagging sales left and right. "At least 20 percent of new consumers have bought the game after playing it [once]," says a Hutch executive.

Small Amounts, High Potential

The subscription model is actually new. But Indians like to pay small amounts, even if several times a month. That's why the prepaid call schemes are so popular, with some carriers offering recharge coupons for as little as 10 Rupees (\$0.22) because even for that, subscribers can make as many as 10 calls. By month's end, these piranha-scale nibbles can add up to a shark bite-sized spend.

That call formula applies to gamers, too, who can subscribe to a game for Rs 20 or less a month. But over three months, that's still more than a user would pay buying a game outright for Rs 50.

But the low-spend model is hardly fail-safe, argues Frost & Sullivan's Mr. Shende. "A good gaming company will need to have a mix of games that are high-risk and high-revenue and others that bring in stable, not spectacular, returns," he says.

But why should India have all the fun? Mobile2Win's Mr. Hiranandani is convinced his upcoming game based on the Indian classic *Kamasutra*, one of the world's oldest instruction manuals about love and sex, has all the makings of being a global hit.

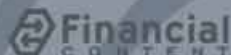
Go move a mountain, Hanuman. The world's got other things on its mind. **RH**



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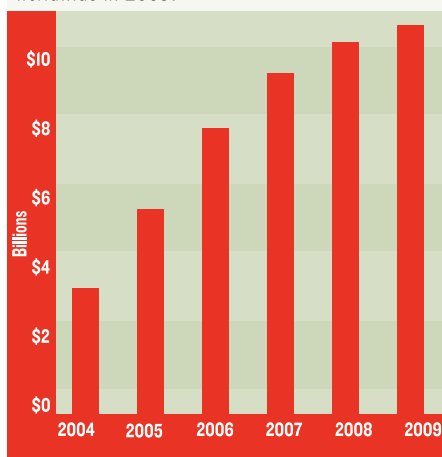
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The Cost of Compliance

High-profile accounting frauds and resulting regulatory measures are starting to show heavily on IT budgets around the world. Companies are spending more on compliance-related software and services, and less on other IT-related items. In 2005, spending on corporate governance software rose a whopping 62 percent to \$5.53 billion and it promises to increase. While there are several kinds of compliance measures, most companies are concentrating on complying with the Sarbanes-Oxley Act and other corporate governance initiatives such as Basel II. A recent CIO survey says 10 percent or more of corporate IT budgets in 2006 are expected to be spent on SOX compliance, while 22 percent of total compliance spending will be allocated to SOX-related measures.

Corporate Costs

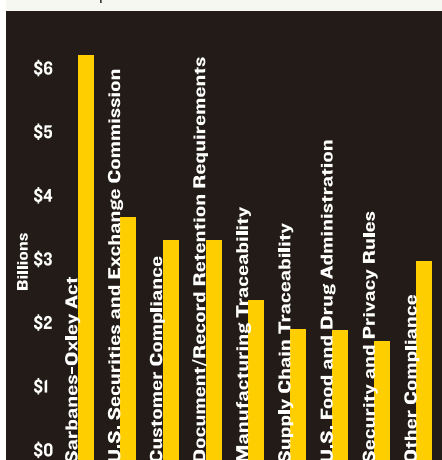
Spending on Sarbanes-Oxley and related regulation software is expected to reach \$10.5 billion worldwide in 2009.



Source: Gartner Dataquest

Sarbanes-Oxley Takes the Cake

Of the \$27.3 billion spent on compliance worldwide in 2006, Sarbanes-Oxley accounts for about 22 percent.



Source: AMR Research

Recently Funded Compliance Companies

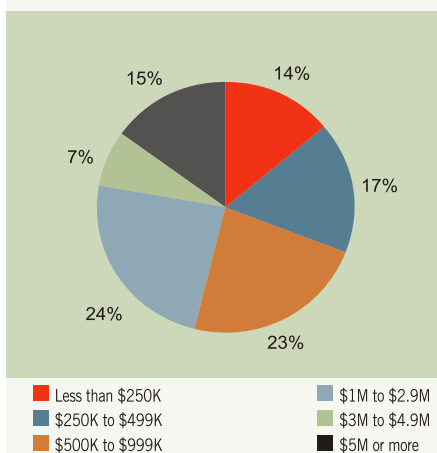
With SAP's acquisition of Virsa, valuations of compliance startups will go up.

Company name	Location	Amount	Date	Technology
Axentis	Warrensville Heights, OH	\$6M	Dec-05	Enterprise governance, risk, and compliance management software
PGP	Palo Alto, CA	\$10.5M	Dec-05	Encryption and digital signature solutions for regulatory and audit compliance
Aegis Analytical	Lafayette, CO	\$3.5M	Nov-05	Compliance software and services to improve quality and predictability of manufacturing in pharma and biotech companies
LogicalApps	Irvine, CA	\$14M	Sep-05	Business controls automation software for enterprise applications
Tizor Systems	Maynard, MA	\$15M	Aug-05	Activity auditing solutions for compliance and security-enabling organizations
Mavent	Irvine, CA	\$5M	Jan-05	Automated compliance solutions for the financial services industry

Source: Dow Jones VentureOne

Chunk of Cash

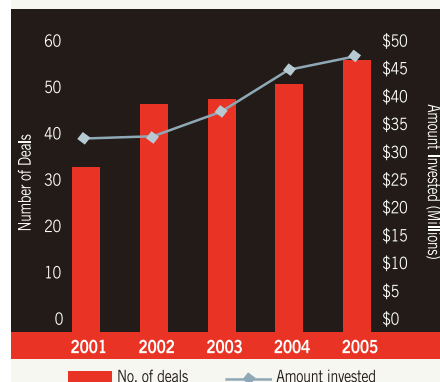
Most U.S. companies will spend between \$1 million and \$3 million on compliance in 2006.



Source: AMR Research

Venture Dollars Increase

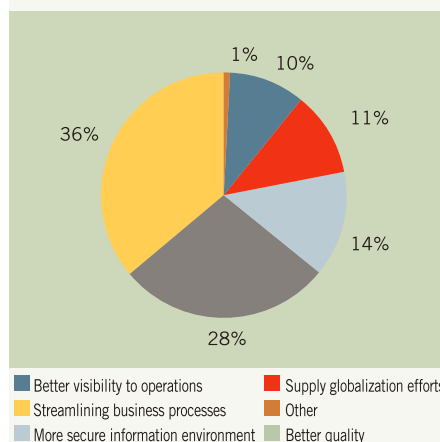
Venture capitalists in the U.S. are pouring more money into companies that sell compliance software or services.



Source: Dow Jones VentureOne

Silver Lining

U.S. companies think using compliance solutions could have added benefits, including streamlining business processes.



Source: AMR Research



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Hot Hands, Frigid Tech

You could even watch Traffic.com crash in real-time.

By the end of March, you could see how this year's new-issues market was shaping up—and no cigar for guessing which banker had the hottest hand.

The evidence showed that Morgan Stanley had been the lead or joint-lead manager for five IPOs since the beginning of the year. The average gain, as measured from their initial offering prices to their closing prices on March 31, was 55.6 percent. That was more than twice the average gain for all IPOs priced during the period.

Bankers had offered 43 IPOs as of March 31, plus 12 unit offerings of common stock and warrants. The average gain for the 43 IPOs was 22.1 percent.

Morgan Stanley's big winner was Chipotle Mexican Grill, a Denver-based operator of fast-food restaurants. On January 25, Chipotle offered 7.9 million shares at \$22 each. On March 31, it closed at \$55.39—up 151.8 percent from its initial offering price. Talk about sizzle: Chipotle had the best aftermarket performance of any IPO in 2006.

Credit Suisse had the second-hottest hand. It was the lead or joint-lead manager for five IPOs. The average gain was 33.1 percent. Its big winner was H&E Equipment, a Baton Rouge, Louisiana-based provider of industrial equipment. On January 30, H&E offered 10.9 million shares at \$18 each. On March 31, it closed at \$29.12—up 61.8 percent from its initial offering price.

Thomas Weisel Partners held the third-hottest hand. It was the lead or joint-lead manager for two IPOs that had an average gain of 30.7 percent. Thomas Weisel's big winner was underwriting itself. On February 1, Thomas Weisel offered 6 million shares at \$15 each. On March 31, the IPO closed at \$21.90 per share—up 46 percent from its initial offering price.

Overall, 28 bankers acted as lead or joint-lead managers for the year's 43 IPOs, though only a few drew big traffic. The eight busiest bankers acted as lead or

joint-lead manager for 30 of the 43 IPOs. Ten bankers acted as lead or joint-lead manager for one IPO each.

Sectors Tell the Story

But the IPO story involved more than managers and winners. "It's about sector play," says Sal Morreale, who follows IPOs for Cantor Fitzgerald. The busiest sectors so far have been technology, energy, and pharmaceuticals.

The tech sector had 12 IPOs: semiconductors had four and computer services, Internet, medical equipment, and telecommunications had two each. "Some worked, some didn't," Mr. Morreale says indifferently.

He's right to be dismissive. On March 31, six of the 12 technology IPOs closed above their initial offering prices, but only just. The average gain for all 12 was 5.42 percent.

Nighthawk Radiology Holdings, a Coeur d'Alene, Idaho-based provider of emergency radiology services, turned out to be the best performer. On February 8, Nighthawk offered 10.9 million shares at \$16 each. On March 31, it closed at \$23.89 per share, up 49.3 percent from its initial offering price.

The worst performer was Traffic.com, a Wayne, Pennsylvania-based provider of real-time traffic information. It looked like it crashed into a lamppost: On January 24, Traffic.com offered 6.6 million

shares at \$12 each; on March 31, it closed at \$8.35, down 30.4 percent from its initial offering price. Traffic.com had the poorest aftermarket performance of any IPO in 2006.

Mr. Morreale likes the energy sector best, observing that "with the spike in crude prices this year, it is not surprising to see oil and gas leading the way."

The higher crude prices, in fact, opened the door for bankers to price seven deals that raised \$2.6 billion—the largest dollar volume in any sector. That said, investors have not been snapping up these stocks in the aftermarket.

On March 31, five of the seven energy IPOs closed above their initial offering prices. The average gain for all seven IPOs was 11.7 percent—well below the 22.1 percent aftermarket gain for all 43 IPOs priced in 2006.

Pharma has been underwhelming at best, to hear Mr. Morreale tell it: "I show my clients all these deals and they never get excited."

On March 31, four of the six pharmaceutical IPOs closed above their initial offering pieces. The average gain for all six was 22.3 percent.

Mr. Morreale sees energy staying in the forefront, pharma remaining in the tank, and healthcare and companies with solid balance sheets continuing to look OK. "Technologies," he declares, "are a mixed bag." **RE**

Hot-Hand Dealers	Lead/Joint-Lead Managed Deals	▲	▼	Average Gain (%)
Morgan Stanley	5	3	2	55.6
Credit Suisse	5	4	1	33.1
Thomas Weisel Partners	2	2	0	30.7
UBS Investment Bank	8	6	2	27.0
Piper Jaffray	3	3	0	26.9
Bear Stearns	4	2	2	23.0
All IPOs				22.1
Citigroup	6	4	2	11.3
Banc of America	4	2	2	10.3
Goldman Sachs	5	3	2	9.4
Lehman Brothers	7	5	2	7.6

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